NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

ANALYSIS OF THE MEDIUM TACTICAL VEHICLE REPLACEMENT (MTVR) CONTRACTOR LOGISTICS SUPPORT (CLS) CONTRACT

by

Luis F. Lara

December 2001

Thesis Advisor: Brad Naegle
Associate Advisor: Ron Tudor

Approved for public release; distribution is unlimited

Report Documentation Page

Report Date	Report Type	Dates Covered (from... to)
19Dec2001	N/A	-

Title and Subtitle Analysis of the Medium Tactical Vehicle Replacement (MTVR) Contractor Logistics Support (CLS) Contract	**Contract Number**
	Grant Number
	Program Element Number
Author(s) Lara, Luis	**Project Number**
	Task Number
	Work Unit Number
Performing Organization Name(s) and Address(es) Naval Postgraduate School Monterey, California	**Performing Organization Report Number**
Sponsoring/Monitoring Agency Name(s) and Address(es)	**Sponsor/Monitor's Acronym(s)**
	Sponsor/Monitor's Report Number(s)
Distribution/Availability Statement Approved for public release, distribution unlimited	
Supplementary Notes The original document contains color images.	
Abstract	
Subject Terms	
Report Classification unclassified	**Classification of this page** unclassified
Classification of Abstract unclassified	**Limitation of Abstract** UU
Number of Pages 114	

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.			
1. AGENCY USE ONLY ***(Leave blank)***	**2. REPORT DATE** December 2001	**3. REPORT TYPE AND DATES COVERED** Master's Thesis	
4. TITLE AND SUBTITLE: Analysis of the Medium Tactical Vehicle Replacement (MTVR) Contractor Logistics Support (CLS) Contract			**5. FUNDING NUMBERS**
6. AUTHOR(S) Lara, Luis F.			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) **Marine Corps Systems Command, Program Manager Transportation Systems Marine Corps Base Quantico, Virginia**			**10. SPONSORING / MONITORING AGENCY REPORT NUMBER**
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			**12b. DISTRIBUTION CODE**

13. ABSTRACT ***(maximum 200 words)***

Many systems developed over the last twenty years are surpassing their originally planned life cycle, as well as, the DoD's. In many cases, the systems have been subjected to at least one service life extension. Because of this, the logistics support concepts used to maintain and to service these systems play a significant factor in determining the overall life-cycle-cost for a system. If the DoD can find a more efficient and effective logistics support concept, substantial cost savings may be realized. Under the appropriate conditions, Contractor Logistics Support (CLS) is an effective means to support Marine Corps ground equipment. DoD Regulation 5000.2R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (AIS),* and congressional statutes mandate the consideration of CLS in the acquisition process. The purpose of this study is to assess the Marine Corps' new Medium Tactical Vehicle Replacement CLS contract and its effectiveness to incentivize the contractor to perform within the requirements of the contract. Results from this study suggest that substantial improvements can be made in the way the Marine Corps contracts for CLS.

14. SUBJECT TERMS Contracting, Contracting Incentives, Contractor Logistics Support (CLS), Contractor Logistics Support Decision Planning and Decision Process, Medium Tactical Vehicle Replacement (MTVR), and Ground Vehicle Systems.			**15. NUMBER OF PAGES**
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	**18. SECURITY CLASSIFICATION OF THIS PAGE** Unclassified	**19. SECURITY CLASSIFICATION OF ABSTRACT** Unclassified	**20. LIMITATION OF ABSTRACT** UL

NSN 7540-01-280-5500 Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

ANALYSIS OF THE MEDIUM TACTICAL VEHICLE REPLACEMENT (MTVR) CONTRACTOR LOGISTICS SUPPORT (CLS) CONTRACT

Luis F. Lara
Captain, United States Marine Corps
B.S., Embry Riddle Aeronautical University, 1993

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
December 2001

Author: Luis F. Lara
Luis F. Lara

Approved by: Brad Naegle
Brad Naegle, Thesis Advisor

Ron Tudor
Ron Tudor, Associate Advisor

for
Kenneth J. Euske, Dean
Graduate School of Business and Public Policy

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Many systems developed over the last twenty years are surpassing their originally planned life cycle, as well as, the DoD's. In many cases, the systems have been subjected to at least one service life extension. Because of this, the logistics support concepts used to maintain and to service these systems play a significant factor in determining the overall life-cycle-cost for a system. If the DoD can find a more efficient and effective logistics support concept, substantial cost savings may be realized.

Under the appropriate conditions, Contractor Logistics Support (CLS) is an effective means to support Marine Corps ground equipment. DoD Regulation 5000.2R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (AIS),* and congressional statutes mandate the consideration of CLS in the acquisition process.

The purpose of this study is to assess the Marine Corps' new Medium Tactical Vehicle Replacement CLS contract and its effectiveness to incentivize the contractor to perform within the requirements of the contract. Results from this study suggest that substantial improvements can be made in the way the Marine Corps contracts for CLS.

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

The author would like to acknowledge the many people that offered support, counsel, and facilitated the process of writing this thesis. I greatly appreciate the guidance, advice and patience of my thesis advisors, Lieutenant Colonel Brad Naegle U.S. Army (Ret.) and Ron Tudor, Esquire. I am also indebted to Lieutenant Colonel Thomas F. Manley III, U. S. Marine Corps for providing me with both the key research data and the direction for this thesis. I would like to express appreciation to Lou Chavers for sharing her contracting experience with me. My gratitude also goes to Ron Russell for his dedicated editing.

I would also like to thank my parents, Luis and Teresa, and my brother Jorge for always reminding me "where I came from" and how hard it was to get here. Most of all, my gratitude goes to my loving wife Yvonne and our vigorous son Antonio, for enduring all those long days and nights that I spent away from them. I dedicate this thesis to you.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. PREFACE

The United States must be capable of maintaining a well-equipped and well-trained military to preserve a forward global presence. However, the days of substantial defense budgets and lavish spending are gone. The end of the Cold War and the demand for the "peace dividend" are still being felt by today's military. Defense budget cuts have chiseled away our readiness, forcing the military to establish new ways to do "more with less."

Despite the incremental defense budget cuts that the Department of Defense (DoD) endures every year, the need to modernize military equipment continues to rise. Many systems developed over the last twenty years are surpassing their originally planned life cycle, as well as, the DoD's. The Military Services are operating and supporting these systems longer. In many cases, the systems have been subjected to at least one service life extension. Because of this, the logistics support concepts used to maintain and to service these systems play a significant factor in determining the overall life-cycle-cost for a system. If the DoD can find a more efficient and effective logistics support concept, substantial cost savings may be realized.

B. RESEARCH BACKGROUND

Many different revolutionary approaches have been implemented in order to achieve "Reduction of Total Ownership Cost" (R-TOC). The DoD has been forced to reinvent itself and to modify the methods in which it procures systems. The Military Services have adapted to these various approaches and have implemented them in developing their latest programs. As a result, the acquisition process has moved to center stage for Military Services. Efforts to improve the acquisition system extend backward for a considerable number of years. These efforts can be seen in Table 1.1 below.

YEAR	REGULATION OR INITIATIVE PUBLISHED
1969	Packard Initiatives
1971	Blue Ribbon Defense Panel (Fitzhugh Commission)
1972	DoDD 5000.1 (Major System Acquisition); Commission on Government Procurement
1973	DoDD 5000.4 (CAIG); DoDD 5000.28 (T&E)
1975	DoDI 5000.2 (Major System Acquisition) DoDD.28 (Design to Cost)
1976	OMB Circular A-109
1978	Defense Science Board Acquisition Cycle Task Force
1979	Defense Resource Management Study
1981	Carlucci Initiatives; Defense Acquisition Improvement Program
1982	Nunn-McCurdy (thresholds)
1983	Grace Commission
1985	DoD 5000.43 (streamlining)
1986	Packard Commission
1987	DoDD 5134.1 (USD [A&T]); DoDD 5000.49 (DAB)
1989	Defense Management Review
1991	Revised DoDI 5000.2 (Major System Acquisition)
1994	Federal Acquisition Streamlining Act (FASA)
1995	Federal Acquisition Improvement Act (FASA II)
1995	Cost as an Independent Variable (CAIV) Policy
1998-9	Section 912c Studies
2000	DoD Directive 5000.1 DoD Instruction 5000.2
2000	Interim Guidance DoD Regulation 5000.2-R
2001	DoD Regulation 5000.2-R

Table 1.1. Regulations and Initiatives After [Ref. 1]

Traditionally, all four Services have relied on organic support as the preferred method for both maintenance and for life cycle management. Military personnel performed organizational and intermediate level maintenance, and a predominately in-house Government workforce performed depot level repair at the individual service's depots. Over the last few years, Program Managers at the different systems commands have been fielding weapon systems or equipment where "contractor logistics support"

(CLS) was the primary source of support instead of traditional organic support. CLS is defined as:

> A method of obtaining logistics support for a product or service for a specified period of time. It may be implemented to provide total support for a product or system or to support one or more specific functions (e.g., maintenance, supply and distribution, training, information technology, and software/hardware support). CLS may be provided through commercial or Government sources. CLS may encompass an entire system, individual system components, or a level of support services associated with the system or any and/or all of its components. [Ref. 2]

These efforts are a direct result of the ongoing initiatives and regulations stated above, but primarily came about due to the results of the Section 912(c) report conducted for Congress in accordance with the National Defense Authorization Act for Fiscal Year 1998. The report addresses the following five initiative areas:

- Restructure Research, Development and Test
- Restructure Sustainment
- Increase Acquisition Workforce Education and Training
- Adopt Integrated, Paper-Less Acquisition
- Focus on Future Areas

The second initiative, Restructure Sustainment, is subdivided further into the following areas:

- 2.1 Reengineer the Product Support Process to Use Best Commercial Practices
- 2.2 Competitively Source Product Support
- 2.3 Modernize through Spares
- 2.4 Establish Program Manager Oversight of Life-Cycle Support
- 2.5 Greatly Expand Prime Vendor and Virtual Prime Vendor

Subset initiative 2.2, Competitively Source Product Support, of the Section 912(c) Report, states that "this initiative will promulgate the use of CLS and expand the current DoD policy that calls for maximizing the use of competitively sourced, long-term, total life-cycle logistics support and applying the CLS to both new and legacy systems." [Ref. 3]

In an effort to comply with new regulations and initiatives, and because it is classified as a pilot program with the Defense Systems Affordability Council (DSAC), the Program Management Transportation Systems Office at the Marine Corps Systems Command (MARCORSYSCOM) implemented CLS as the primary source of support for the fielding of its new tactical wheeled vehicle, the Medium Tactical Vehicle Replacement (MTVR). The MTVR Program is an acquisition category two program (ACAT II). The MTVR is classified as such because it is a major system that has total expenditures that fall within the following parameters: "Research Development Testing & Evaluation of more than $140 million (FY 1996 constant dollars) and total procurement expenditures of more than $645 million (FY 1996 constant dollars)." [Ref. 4] The MTVR is unique because it began as a joint remanufacture program between U.S. Army Tank and Automotive Command (TACOM) and MARCORSYSCOM. Under a July 1994 Memorandum of Understanding (MOU), amended in May 1998, the Marine Corps' portion of the program has been co-managed by the Program Executive Officer, Tactical Wheeled Vehicles (PEO TWV) and MARCORSYSCOM.

As of July of 2001, the contracting agency duties were transferred from TACOM to the U.S. Marines Corps Logistics Base, Albany, Georgia. The program goal for the Marine Corps is to field a cost-effective, state-of-the-art system to replace the existing fleet of M809 and M939 series of medium-tactical trucks. The approved acquisition objective is 7,360 Medium Tactical Vehicle Replacement trucks; however, the program is funded for 6,854. The program recently achieved both Milestone III approval and Initial Operational Capability (IOC). The manufacturer of the truck is the Oshkosh Truck Company (OTC). Production is scheduled from fiscal year 1999 to fiscal year 2003.

Life-Cycle-Cost has been the focal point in every phase of the Acquisition Process. This is why during the developmental effort, the Program Office, together with OTC, focused on proving the concept of integrating up-to-date technology with an existing vehicle rather than developing new technology. The proof-of-concept testing demonstrated the feasibility of such integration efforts.

The use of Commercial-off-the-Shelf (COTS) greatly reduces the TOC. Susan Brown, a writer for *Program Management Magazine*, stated in her review article of the MTVR that,

> Life-cycle-costs are significantly reduced, as the MTVR performance specification requires a 22-year vehicle life with no midlife depot rebuild. An aggressive 22-year anti-corrosion requirement further contributes to the extended life of the vehicle. Adoption of the Interactive Electronic Technical Manuals (IETM), systems simulators, and computer-based learning will strengthen supportability, cut diagnostic troubleshooting efforts, and facilitate operator and maintenance mastery of occupational skills …. [Ref. 5]

Finally, the Program Management office implemented the concept of CLS to further reduce the TOC. As of September 21st, 2001, a Firm-Fixed-Price Indefinite Delivery/ Indefinite Quantity (ID/IQ) contract was awarded to OTC to provide logistical support services to support the MTVR.

C. RESEARCH OBJECTIVE

The purpose of this thesis is to provide a comprehensive analysis of the CLS contract awarded to the Oshkosh Truck Company to support the MTVR. Additionally, this paper determines what contractual incentives are best suitable for CLS contracts. The second purpose of this paper is to determine if the contractual agreement is suitable as a model to aide in standardizing other CLS efforts, which the Program Management (PM) Transportation Systems, MARCORSYSCOM conducts.

D. SCOPE

The scope of the thesis focuses on assessing the new MTVR CLS contract and its effectiveness to incentivize the contractor to perform within the requirements of the contract. This thesis provides a review of the history of the MTVR program, a review of the traditional organic maintenance and supply support, which the U.S. Marine Corps (USMC) uses. This thesis further defines Contractor Logistics Support (CLS) and provides an overview of the decision making process used to determine if CLS is a viable option. Additionally, this thesis presents crucial research data obtained from the following documents:

- Mission Need Statement (MNS)
- Operational Requirements Document (ORD)

- MTVR Acquisition Strategy
- Business Clearance Memorandum (BCM)
- Integrated Logistics Support Plan (ILSP)
- Contractor's Technical Approach
- CLS Contract

Finally, this thesis provides an analysis of the contracting agreement used to award the CLS contract and recommends different methods of incentivizing the contractor's performance.

E. RESEARCH QUESTIONS

1. Primary Research Question

Is it feasible for PM Transportation, MARCORSYSCOM, to standardize the CLS contracts for future procurement of tactical wheeled vehicles?

2. Secondary Research Questions

- What are the Program's requirements?
- What type of contracting agreement is most suitable for the CLS?
- Is the Statement of Work suitable for this type of contract?
- What are the key performance parameters?
- What criteria are used to evaluate contractor performance?
- How is the Government incentivizing the contractor's performance?

F. METHODOLOGY

An important part of this research is the literature review. As of yet, no published criticism is available on the MTVR CLS contract that may help evaluate the program. Thus, in order to comprehend the CLS contract in its entirety, the researcher considers the opinions of Government and industry spokespersons and evaluates similar contracting strategies. The researcher obtained a copy of the existing MTVR CLS contract developed by MARCORSYSCOM in conjunction with the OTC. The methodology used in this thesis research consists of the following steps:

- Conduct a comprehensive literature search of books, magazine articles, CD-ROM systems, Government reports, acquisition regulations; Internet based materials and other library information resources

- Review the MTVR's Operational Requirements Document, Acquisition Strategy, Contracted Logistics Support contract, Statement of Work, Business Clearance Memorandum (BCM), and the OTC's Technical Approach
- Conduct personal or telephony interviews with members of the MTVR Program Management Office at MARCORSYSCOM and at MCLB Albany
- Conduct personal or telephony interviews with members of the Program Management Office at Oshkosh Truck Company

G. ORGANIZATION OF THE STUDY

Chapter I introduces the background of the research, the objective of the research, the primary and subsidiary research questions, the scope of the research, the research methodology, the organization of the study, and the benefits of the research.

Chapter II examines the MTVR program history and discusses the organic maintenance and supply support system utilized in the USMC. Finally, Chapter II provides an overview of CLS and the decision making process that is utilized to determine if it is applicable for use.

Chapter III introduces the MTVR CLS contract and presents the rationale for choosing the CLS option. The chapter also explains the rationale for not competing the CLS contract. Additionally Chapter III also defines the key elements of the CLS contract type and Statement of Work (SOW). Finally, Chapter III presents an overview of the contract's incentives and defines incentives that possibly could be used with this type of contract.

Chapter IV analyzes the contractual agreement utilized in support of the MTVR. Chapter IV also analyzes specific elements from the SOW. Additionally, Chapter IV analyzes the incentives and exit strategy used in the CLS contract. Finally, Chapter IV analyzes the effects of awarding this contract sole source.

Chapter V provides conclusions and recommendations based on the research presented within earlier chapters. Moreover, Chapter V offers areas for further research to enhance the use of CLS in future CLS contracting efforts.

H. BENEFITS OF STUDY

This thesis is primarily intended to benefit the Program Management Office Transportation Systems MARCORSYSCOM in regards to developing a standard methodology in which it conducts Contracted Logistics Support contracts.

II. BACKGROUND

A. INTRODUCTION

This chapter provides background information on the Medium Tactical Vehicle Replacement (MTVR) program and gives a brief description of the traditional logistical support methods that the U.S. Marine Corps uses. Finally, this chapter provides an overview of CLS and the decision process that enables Program Managers (PMs) to use CLS.

B. MTVR BACKGROUND

Throughout the world, the Marine Corps deploys in the form of Marine Air-Ground Task Forces (MAGTF). These MAGTFs must be prepared to conduct expeditionary operations across a diverse spectrum of conflict. To accomplish their missions successfully, these forces require a ground-transport logistics vehicle that is flexible, reliable and mobile. Due to the expeditionary nature of the Marine Corps, it has curtailed the numbers and sizes of all the systems for combat, combat support, and combat service support. Consequently, the mix and types of vehicles within the Marine Corps' motor transport fleet has minimized.

The Marine Corps' motor transport assets consist of light, medium, and heavy truck fleets. The light fleet consists of the following vehicles: the High Mobility Multipurpose Wheeled Vehicle (HMMWV), the Military Motorcycle (MILMO), the Interim Fast Attack Vehicle (IFAV), and the IFAV's successor the Internal Transportable Vehicle (ITV), which is slated for production in fiscal year 2002. The heavy fleet consists of the Logistics Vehicle System (LVS) and all its variants. The medium truck, filling the gap between the light fleet and the heavy fleet, is considered the "workhorse" of the fleet and is designated to support Mission Area 43, Transportation. [Ref. 6]

The MAGTF has a continuing requirement for a medium truck fleet capable of transporting personnel, towed weapons, automatic weapon systems, communication equipment, engineer equipment, break-bulk cargo, packaged/bulk Petroleum, Oils, Lubricants (POL), packaged/bulk water, ammunition, dimensional standard shelters/frames, and commercial cargo containers. With the ability to carry such a wide

range of supplies to forward deployed units, the medium truck is considered the Marine Corps' primary delivery system.

The medium truck fleet currently consists of the M939 series trucks. The Marine Corps procured these trucks in 1983, in an effort to replace the aging fleet of the M39 series. Although the Marine Corps has procured new trucks, the basic truck design has remained unchanged since the 1950's, and has not made any significant improvements in mobility and only marginal improvements in reliability and fuel efficiency. The current medium-truck fleet lacks true cross-country mobility and is essentially road bound. When operating off-road, its straight axle suspension and limited power train restrict it from achieving sufficient speed to support combat units. As the M198 artillery piece prime mover, it limits the weapon system to firing positions easily accessible by road networks. Its limited payload means that the available cargo bed space cannot be used when carrying high-density loads such as ammunition and bulk liquids. These deficiencies, in conjunction with the entire M939 tactical truck fleet reaching the end of its Economic Useful Life (EUL) in FY 2002, motivated the Marine Corps to publish the Mission Need Statement (MNS) number MOB 211.4.2A dated 30 March 1992. The MNS clearly defines the needs of a new platform to replace the existing M939 fleet. [Ref. 7]

The MTVR is unique because it began as a joint remanufacture program between the U.S. Army Tank and Automotive Command (TACOM) and MARCORSYSCOM. Under a July 1994 Memorandum of Understanding (MOU), amended in May 1998, the Marine Corps' portion of the program has been co-managed by the Program Executive Officer, Tactical Wheeled Vehicles (PEO TWV) and MARCORSYSCOM. Together they began examining different alternatives that were recommended by the September 1993 Cost and Operational Effectiveness Analysis (COEA). The three different alternatives explored are listed below:

- Rebuild the existing medium fleet, but incorporate new technology (fuel-efficient engine and Central Tire Inflation System (CTIS)) resulting in an M939A2 configuration.
- Rebuild the existing medium fleet to Marine Corps Advance Technology Transition Demonstrator (MCATTD) technology (higher horsepower

engine, air starter, and independent suspension) along with other mobility enhancing and reliability improvements common to Alternative (1).

- Pursue a combination of alternatives (1) and (2).

After a detailed analysis of performance requirements, remanufacturing and a new vehicle Life-cycle-cost Estimate, the Assistant Secretary of the Navy Research Development & Acquisition (ASN RD&A) directed the Marine Corps Systems Command to procure new vehicles and to proceed with steps necessary to award a five-year, multi-year contract. [Ref. 8]

1. Vehicle Characteristics

The MTVR offers significantly greater mobility and lift than the current M809/M939 series fleet. Built to carry greater than 7-ton payloads off-road, (70% of the operational mode), and up to 15-ton payloads on road, (30% of the operational mode), the MTVR was designed as the most powerful and versatile medium-tactical truck in military history. The MTVR is depicted in Figure 2.1 below.

Figure 2.1 MTVR Truck Cargo Variant

The MTVR includes the following state-of-the-art automotive characteristics:

- Oshkosh Double A-arm 6 Wheel Independent Suspension
- Caterpillar C12 425 HP Engine with Jacobs Engine
- Allison HD 4070P 7-Speed Continuous Power Automatic Transmission
- Oshkosh Single-Speed Transfer Case
- Improved Starter and Cold Weather Starting Aid
- Automatic Traction Control (ATC)

- SAE J1708/J1939 Data Bus and Built-in Diagnostics
- Michelin R16.00x20 Radial Tires
- Eaton/Bosch Antilock Brakes
- Eaton Central Tire Inflation System
- Cab & Body: All aluminum hardtop cab that two Marines can fold down in less than 15 minutes
- Composite Hood
- ISO Capable Cargo Body

The MTVR provides improvements in cross-country mobility and cargo capacity. Preventive maintenance thresholds and objectives are generated by peacetime requirements so that they can reflect the average anticipated annual mileage accumulated by the medium-truck fleet. For all other thresholds and objectives, for which peacetime and wartime use would differ, arduous wartime requirements determined the limiting factors for the MTVR as opposed to less stringent peacetime requirements. The following five variants comprise the fleet:

- Cargo, 6X6
- Cargo, Extra-Long Wheel Base 6X6 (XLWB)
- Dump, 6X6
- Wrecker, 6X6
- Telephone Maintenance, 6x6

A comparison of vehicle characteristics can be seen in Table 2.1 below.

SPECIFICATIONS	M939 SERIES	MTVR
Length without Winch	311”	316”
Length with Winch	332”	316”
Width	98”	98”
Operating Height	121”	143”
Reduced Height	92”	98”
Curb Weight	21,600	27,800

Table 2.1 Physical Characteristics of the M939 and the MTVR

The Operational Requirements Document (ORD) stipulates a mission profile of 30% hard-surface highway miles and 70% off-road miles. Root Mean Squared (RMS) in the following mission profile breakdown represents a measure of surface/terrain roughness used to evaluate trafficability. [Ref. 6]

- Primary Roads: Two or more lanes, paved and maintained with an RMS value of 0.1 inches
- Secondary Roads: Up to two lanes hard or loose surface (gravel, crushed rock, and the like) occasionally maintained with a RMS value between 0.3 and 1.0 inches
- Trails: One lane, unimproved, loose surface with no maintenance, with an RMS value between 1.0 and 3.4 inches
- Cross-Country: No road, routes, trails, or man-made improvements with RMS values between 1.5 and 4.8 inches

The mission profile breakdown is depicted in Table 2.2 below.

ROAD TYPE	% OPERATION	RMS RANGE
Primary Road	10%	0.1" (0.25cm) - 0.3" (0.76cm) RMS
Gravel Road	20%	0.3" (0.76cm) - 1.0" (2.54cm) RMS
Trails	30%	1.0" (2.54cm) - 3.4" (8.63cm) RMS
Cross-Country	40%	1.5" (3.81cm) - 4.8" (12.18cm)RMS

Table 2.2. RMS Range Operational Breakdown From [Ref. 6]

- Payload. The MTVR is capable of 15 tons on-road and 7 tons off-road
- Sustained Speeds. The MTVR is able to sustain speeds up to 55 miles per hour (mph) on-road, and 30 mph off-road
- Fording. The MTVR can ford up to 60 inches without the need for a specialized kit
- Amphibious Compatibility

Virtually identical in dimensions to the M939 series trucks, the MTVR remains fully compatible with U.S. Marine Corps and U.S. Navy amphibious doctrine, ships, and landing craft.

2. Acquisition Strategy

Program Manager MTVR developed and documented an acquisition strategy to guide the execution of the acquisition program. This strategy proceeds from initiation of vehicles through the re-procurement of systems, subsystems, components and spares. It also manages all services beyond the initial production contract award and during post-production support. This acquisition strategy evolved through an iterative process and became increasingly more definitive in describing the relationship of the essential elements of a program. A primary goal of the MTVR strategy was to minimize the time and cost required, consistent with common sense and sound business practices, to satisfy identified validated needs, and to maximize affordability throughout the program's useful life cycle. Depicted in Figure 1 below is an overview of the Acquisition Milestones and Phases. Following the figure is a brief overview of the completed Milestones and Phases.

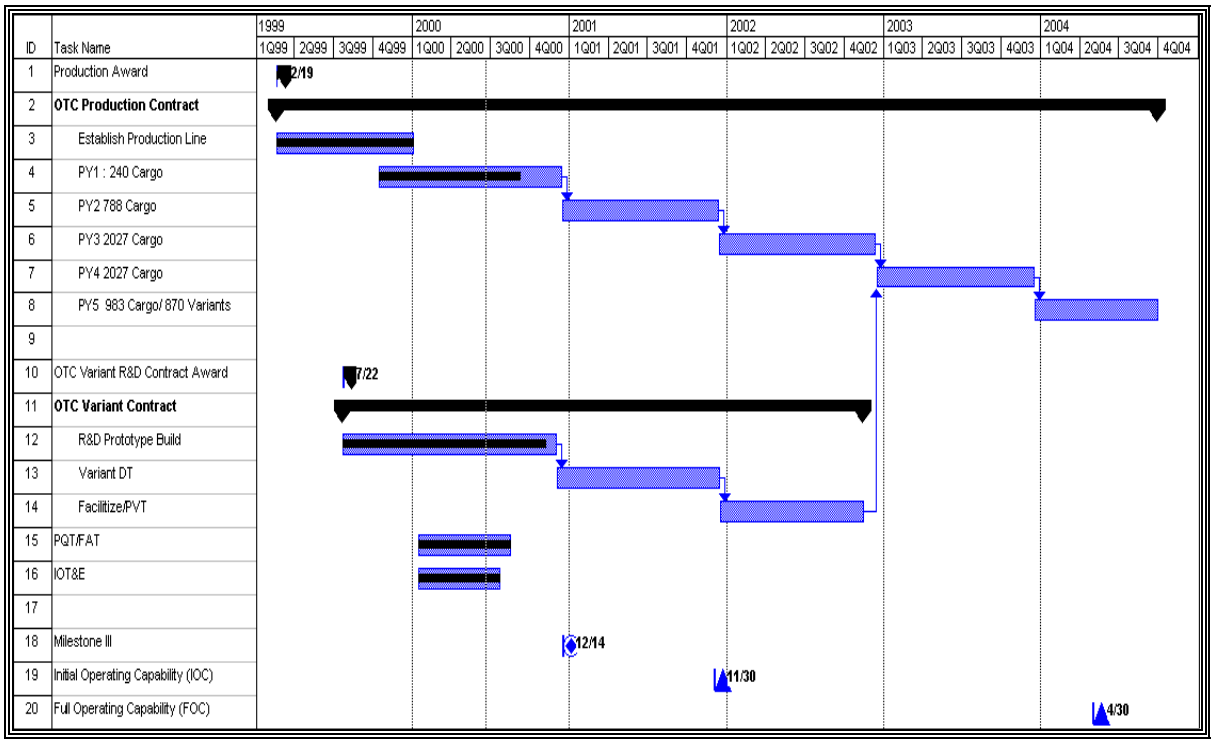

Figure 2.2. Acquisition Milestones and Phases From [Ref. 8]

a. Concept Exploration and Development (CE/D) and Demonstration and Validation (D/V)

The developmental effort intended to integrate up-to-date technology with an existing vehicle rather than develop new technology. The proof-of-concept testing demonstrated the feasibility of such integration efforts. The availability and successful integration of up-to-date truck technology to the existing medium vehicles obviated the need for a formal D/V phase.

The Nevada Automotive Test Center (NATC) secured the award for the design, engineering and fabrication of a technical demonstrator as a proof-of-concept vehicle contract during the initial CE/D Phase 0. A standard M923Al (M939 series) cargo truck was fitted with an independent suspension system. After a series of shakedown tests to establish the soundness of the basic engineering applied to the vehicle, a series of comparison tests were initiated using the technical demonstrator and a standard M923Al truck. These tests defined the impact of an independent suspension in terms of shock and vibration variations, ride quality, and load carrying capacity. [Ref. 8]

Concurrent with these tests, a study of Marine Corps Combat Development Command directed operational areas was conducted to establish performance parameters; a trade study of various power train packages was completed; and an engineer evaluation test plan was developed. Upon completion of the comparison tests, an upgraded power train was installed and the central tire inflation system upgraded. After vehicle shakedown testing, complete performance, environmental, and durability evaluations were initiated. Two similar prototypes were developed as Marine Corps Technology Transition Demonstrators (MCATTDs). The evaluation of the MCATTDs established the performance specification parameters for Engineering and Manufacturing Development (EMD) R&D prototypes. The Director, Marine Corps Operational Test and Evaluation Activity (MCOTEA) conducted a limited Early Operational Assessment (EOA) with the MCATTDS for an initial field evaluation of the MCATTD increased capabilities. [Ref. 8]

b. Engineering and Manufacturing Development (EMD)

The MTVR Program entered the EMD phase after receiving Milestone I/II approval from the ASN RD&A planned for the 2nd Quarter Fiscal Year 1995. The Oshkosh Truck Company and A.M. General were the two contractors selected to build the MTVR prototypes. During the EMD, the two prototypes underwent Reliability, Availability, Maintainability (RAM) and performance testing, as well as a limited user evaluation. Test results were used to down-select to one contractor to produce production items. EMD phase goals were

- Improve the off-road mobility of the 5-ton medium-truck fleet.
- Improve the off-road payload capacity of the medium-truck fleet to greater than 5 tons, 8 tons objective
- Improve the highway payload capacity to greater than 12 tons with an objective of 15 tons.
- Verify increased reliability, maintainability and performance of the updated subsystems (engine, transmission, suspension, etc.) of the remanufactured 5-ton medium-truck.
- Ensure that the remanufactured 5-ton medium-truck is suitable for Marine Corps use.

c. Production

The Oshkosh Truck Company (OTC) won the production contract. The contract is a five-year, multi-year firm-fixed price contract (DAAE07-99-C-M007). The signing of the contract took place in February of 1999. The Oshkosh Truck Corp (OTC) entered Low Rate Initial Production (LRIP) for the cargo variant in February of 1999. OTC was also awarded a sole source Research & Development (R&D) contract in the 3rd Quarter of 1999 for the design, production and testing of prototype dump, wrecker, and telephone maintenance variants. Listed below in Table 2.3 is the production schedule. [Ref. 8]

FISCAL YEAR / VARIANT	FY99	FY00	FY01	FY02	FY03	TOTAL
CARGO/XLWB	240	768	1,948	1,948	1,060	5,964
WRECKER					325	325
TELEPHONE MAINTENANCE		20				
DUMP					545	
TOTAL	240	788	1,948	1,948	1,930	6,854

Table 2.3. Production Schedule From [Ref. 8]

The vehicles have undergone Operational Testing (OT) under the auspices of the Marine Corps Operational Test and Evaluation Activity (MCOTEA), and First Article Test (FAT) at Yuma Proving Grounds and Aberdeen Test Center. Performance of corrective actions occurred after the release and evaluation of the Test results in November 2000. After a careful review of the Developmental Testing & Evaluation (DT&E) and the Initial Operational Testing & Evaluation (IOT&E) results, Milestone III, received approval during a Program Decision Meeting (PDM) in April of 2001. TACOM transferred the contracting agency duties to the U.S. Marines Corps Logistics Base, Albany, Georgia, as of July of 2001. The Initial Operational Capability and initial fielding begins in the fall of 2001. [Ref. 9]

d. Fielding

The MTVR will be fielded "horizontally," one Marine Expeditionary Force (MEF) at a time. Cargo truck fielding will precede fielding of the variants (wrecker, dump truck, and telephone maintenance). The reserve forces are scheduled for fielding after the full fielding of the active forces. Supporting establishments are next in line in the fielding schedule. Maritime Prepositioned Ships (MPS) assets will be fielded to coincide with maintenance cycles. No requisitions need be submitted on the MTVR. The MTVRs will be shipped from the production contractor directly to Force Service Support Groups (FSSGs) or bases for de-processing and marked for using units. Table 2.4 below, reflects the planned distribution:

UNIT	TELEPHONE MAINTENANCE	CARGO	EXTRA LONG WHEEL BASE	WRECKER	DUMP
I MEF	6	995	166	63	115
II MEF	6	989	190	60	106
III MEF	6	648	101	45	64
SMCR	2	844	151	16	104
POSTS/ STATIONS		605	20	16	5
MPS		1,002	0	72	138
DMFA		131	23	11	13
WRMR	0	0	53	0	0
TOTAL	20	5,214	750	325	0

Table 2.4. Variant Distribution From [Ref. 8]

C. ORGANIC SUPPORT

As defined in Joint Publication (Joint Pub) 1-02, the Department of Defense Dictionary of Military and Associated Terms, logistics is "the science of planning and carrying out the movement and maintenance of forces." In its most comprehensive sense, logistics provides materiel support, health service support, facilities support, and service support. This thesis focuses on materiel support. [Ref. 10]

Materiel support is the design development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel. United States Code, Title 10, assigns each Service responsibility for organizing, training, and equipping forces for employment in the national interest. Joint Pub 4-0, Doctrine for Logistic Support of Joint Operations, states that each Service is responsible for the logistics support of its own forces. Joint Pub 4-0 further clarifies logistics support responsibilities for forces assigned to combatant commanders. The combatant commander may then delegate the responsibility for providing or coordinating support for all Service components in the theater or designated area to the Service that is the dominant user. However, each Service retains its basic logistics responsibilities, except when the Services enter into logistics support agreements or arrangements with national agencies, allies, joint forces, or other Services. [Ref. 11]

Based on United States Code, Title 10, and joint doctrine, the Marine Corps, in coordination and cooperation with the Navy, has made logistical self-sufficiency an essential element of Marine Air-Ground Task Force (MAGTF) expeditionary war-fighting capabilities. This means that the Marine Corps' logistics mission, at all command and support levels, is to generate MAGTFs that are rapidly deployable, self-reliant, self-sustaining, and flexible and that can also rapidly reconstitute.

Logistics is normally categorized in six functional areas: supply, maintenance, transportation, general engineering, health services, and services. Each functional area has logistics systems and plans exclusively developed for it. Logisticians commonly discuss support requirements and concepts in terms of these commodity areas. However, integrating all the logistics functional areas is essential for the overall logistics support operation to ensure total support of MAGTF operations. The scope of the following discussion is limited to maintenance and supply.

1. Maintenance

Maintenance is one of the six functional areas of logistics. It is defined as:

> 1. All action taken to retain materiel in a serviceable condition or to restore it to serviceability. It includes: inspection, testing, servicing, classification as to serviceability, repair, rebuilding, and reclamation. 2. All supply and repair action taken to keep a force in condition to carry out its mission. 3. The routine recurring work required to keep a facility (plant, building, structure, ground facility, utility system, or other real property) in such condition that it may be continuously utilized, at its original or designed capacity and efficiency, for its intended purpose. [Ref .11]

The Marine Corps service policy also considers efforts to update and upgrade the capability of materiel as a maintenance function. Maintenance involves those actions taken to retain or to restore materiel to serviceable condition. The purpose and function of equipment maintenance are universally applicable, but the Marine Corps has developed distinct applications for the support of ground-common and aviation-unique equipment. This section discusses ground equipment. [Ref. 11]

Three categories of maintenance exist within the Marine Corps' ground equipment maintenance system: organizational, intermediate, and depot. Within these three categories are five echelons of maintenance. Each category and echelon is authorized to perform certain maintenance functions on certain commodities or equipment (e.g., communications, ordnance, motor transport). This capability is normally listed in a unit's Table of Organization (T/O) mission statement. Maintenance units are not restricted to performing only one echelon of maintenance. For example, a unit may be authorized to perform first and second echelon maintenance or even third or fourth. To manage maintenance effectively, commanders must understand their maintenance responsibilities and the maintenance responsibilities of those units in support. Table 2.5 below depicts the levels and echelons of ground-equipment maintenance.

LEVELS OF MAINTENANCE	**ECHELONS OF MAINTENANCE**
Organizational Authorized by, performed by, and the responsibility of the using unit. Consists of cleaning, servicing, inspecting, lubricating, adjusting, and making minor repairs.	First Level of Maintenance Limited action: Performed by crew or operator as prescribed by applicable manuals. Second Level of Maintenance Limited action above the operator level: Performed by specialist in the using unit.
Intermediate Performed by designated agencies in support of the using unit or, for certain items of equipment, by specially authorized using units. Includes repair of sub-assemblies and major end items for return to lower echelons or to supply channels.	Third Level of Maintenance Component replacement: Performed by specially trained personnel or Combat Service Support (CSS) units. Fourth Level of Maintenance Component end-item overhaul and rebuilding: Performed by CSS units at semi-permanent or fixed sites.
Depot Major overhaul and complete rebuilding of parts, sub-assemblies, assemblies, and end items.	Fifth Level of Maintenance End item overhaul and rebuilding: Performed by industrial-type activities using production line techniques, programs, and schedules.
Equipment technical manuals and stock lists specify the echelon repair for each item.	

Table 2.5 Levels and Echelons of Maintenance for Ground Equipment From [Ref.11]

2. Supply

The mission of the Marine Corps Supply System (MCSS) is to provide and manage those items necessary for the equipment, maintenance, and operation of the Fleet Marine Force (FMF) and the supporting establishments. When MAGTFs deploy, the MCSS attempts to forecast requirements so that necessary on-hand stocks are maintained.

The availability of these stocks is often reduced due to shipping constraints, extended distances from re-supply points, and a lengthened administrative time to process supply requisitions. Depending on situations and conditions, the requisition process may be prolonged if the actual source of supply changes. Whether the supply system is working to provide repair parts or initial issues of new equipment, reconciliation of the supply system is necessary. Special emphasis is generally placed on supply requisitions that adversely impact the mission. In addition, the customer monitors the status of his requisitions.

The MCSS consists of three essential managerial levels 1) Headquarters Marine Corps (HQMC), 2) the in-stores, and 3) the out-of-stores functional elements. The systems extend from HQMC down to the user. Concepts, policies, and guidance emanate from HQMC; distribution is performed by the in-stores system; and the ultimate user is the out-of-stores element. [Ref. 12]

a. Headquarters Marine Corps

The Commandant of the Marine Corps (CMC) is directly responsible for the total performance of the supply system, including requirements, efficiency, readiness, and operation. Assisting the CMC with these responsibilities is the Headquarters staff. The Deputy Chief of Staff Installations and Logistics (DC/S I&L) is the principal staff advisor to the CMC in supply matters and is responsible for managing the supply system. The DC/S I&L is also the principal logistician on the general staff of the CMC. This office is responsible for logistics and CSS policies, materiel program objectives, and programs relating to materiel readiness. DC/S I&L plans and establishes requirements for research and development in logistics and combat service support and is responsible for the ground materiel equipment required for support of operations. [Ref. 12]

b. The In-Stores Element

This includes those assets and management functions pertaining to financial and centralized item accountability and control or both. The in-stores element also initially distributes finished supplies for users. The in-stores element is managed under the Marine Corps Unified Materiel Management System (MUMMS). [Ref. 12]

c. The Out-of-Stores Element

This element of the MCSS consists of assets that have been issued to the user, i.e., units of the FMF (divisions, aircraft wings, CSS support units) and non-FMF (posts, camps, stations, and recruiting and reserve districts). Materiel in the out-of-stores *ele*ment is not centrally managed except for those stocks of the Fleet Marine Force (FMF) that Supported Activities Supply System (SASSY) manages. Stockage objectives are based on actual usage or on mandatory Table of Equipment (T/E) allowances the HQMC publishes for each unit. Currently in the FMF, all phases of supply accounting (ammunition excepted) at the organic or using unit are performed under the rules of the SASSY. This system eliminates most of the manual accounting using a centralized computer management system. However, the Marine Corps is currently working to replace SASSY with the Asset Tracking for Logistics and Supply System (ATLASS). [Ref. 12]

Within each FMF are intermediate supply support elements called Supported Activities Supply System Management Units (SMUs). They are mechanized in their accounting function, but they are not mobile as an entity and do not usually deploy with major troop units. The SMUs stock the materiel necessary to support the major units for prescribed level of operations. These intermediate supply support elements perform their own inventory accounting through standard computerized procedures controlled by HQMC. The using units requisition materiel from the SMU's general accounts (i.e., the account which controls the inventory for the geographical region that the SMU supports), and their demand is either filled, back-ordered, or procured locally. They can be procured locally by using open purchase contracts, through inter-service support agreements (ISSA), or passed to the Integrated Materiel Manager (IMM). SMUs are the connecting link between unit level supply accounts, the MCLBs, and the IMM activities**.** [Ref. 12]

The interrelated actions produced by a customer's request for materiel illustrates the overall operation of the out-of-stores system. Essentially, the using unit or customer places demands (requisitions) on the system in two ways. These are the informal (non-requisition) demand and the formal demand conforming to the Military Standard Requisition and Issue Procedure (MILSTRIP).

D. CONTRACTOR LOGISTICS SUPPORT (CLS)

Life-Cycle-Cost (LCC) has been the focal point in every phase of the Acquisition Process. The Program Manager, MTVR streamlined the acquisition process by combining Milestone I and Milestone II. The PM, MTVR, also received ASN (RD&A) approval for a five-year, multi-year contract, a strategy that reduces the time required to develop and award an additional separate production contract during competitive phases. Additionally, to accommodate fielding requirements, the PM MTVR ran concurrent First Article Testing (FAT) and Operational Testing & Evaluation. To further reduce Life-Cycle-Cost, PM MTVR, made the decision to integrate the use of CLS with organic logistics support. [Ref. 13]

This section defines CLS and provides an overview of the decision support planning and decision process, which Program Managers use to determine the level of CLS required. In effort to further reduce the Acquisition Process cycle time, PM MTVR did not use the decision support planning and decision process, but did use many of the same references and principles.

1. Background

CLS is an effective means to support Marine Corps ground equipment, ground weapon systems, munitions and information systems under the appropriate conditions. DoD Regulation 5000.2R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (AIS)* (June 2001), and congressional statutes mandate the consideration of CLS in the acquisition process. The selection of CLS, organic support, or a combination of both must be based on full consideration of the system employment, deployment, readiness, sustainability requirements, design maturity, planned life cycle, manpower requirements, constraints, total life-cycle-costs, and system complexity. CLS contracts are not limited to the

Original Equipment Manufacturer (OEM) and can be obtained via full and open competition.

2. Definitions

- ***Contractor Logistics Support (CLS):*** This is a method of obtaining logistics support for a product or a service for a specified period. It may be implemented to provide total support for a product or system or to support one or more specific functions (e.g., maintenance, supply and distribution, training, information technology, and software/hardware support). CLS may be provided through commercial or Government sources. CLS may encompass an entire system, individual system components, or a level of support services associated with the system and all of its components.
- ***Interim Contractor Support (ICS):*** This type of support strategy allows fielding of a new or significantly modified item or system before determining the method of life cycle support on becoming operational. ICS gives the Marine Corps the flexibility to defer investment in all or part of the organic support resources (such as spare parts, technical data, support equipment, and training devices). ICS usage should not exceed two years.
- ***Depot Maintenance CORE:*** Depot maintenance CORE is that capability within organic depots that meets readiness and sustainability requirements of the Joint Chief-of-Staff (JCS) contingency scenarios, minimizes risk, and retains only the minimum facilities, equipment, and skilled personnel necessary to ensure a ready and controlled source of technical expertise. [Ref. 14]

3. Policy

When determining CLS applicability, for effective and timely response to wartime surge demands the program manager must weigh the use of contractor-provided, long term, total lifecycle logistics support against mandated retention of core capabilities and expertise. Title 10, Section 2464, U.S. Code mandates the retention of core capabilities. The following laws and regulations apply to the use of CLS and maintaining core capabilities:

- ***Title 10, Section 2464:*** requires DoD activities to maintain a core logistics capability.
- ***DoD 5000.2R:*** directs the maximum use of the private sector for maintenance and support of new weapon systems and equipment for non-core related workloads.
- ***Marine Corps Order 4000.56 Marine Corps Policy on Depot Maintenance Core Capabilities*** **(June 2000):** contains depot-

maintenance core capabilities and provides methodology for calculating core requirements.

- ***Marine Corps Order 4200.33*** **(December 2000):** provides policy and guidance for the consideration, selection and use of CLS for Marine Corps ground equipment, ground weapon systems, munitions, and information systems.

4. Decision Support Planning

The decision process begins with the assumption that a materiel solution has been determined to meet a USMC requirement. The goal of the process is to determine how best to support the materiel solution logistically in accordance with the Marine Corps Logistics Campaign Plan. The termination of the process provides the program manager with sufficient information to base program support on organic support or CLS. Based on an Analysis of Alternatives (AOA), the program manager decides whether to use organic support, CLS, or a mixture of the two. The AOA must be updated before each milestone decision in the life-cycle management process. The AOA is based on, but not limited to, the following considerations: [Ref. 15]

a. Operational Readiness and Support in Garrison and a Deployed Environment

A key consideration facing the program manager in making a decision to use CLS or organic logistic support is the integration of support contractors in a deployed environment. While it is necessary to maintain readiness on a weapon system, to meet operational goals it becomes more complicated if the contractor is not permitted forward of the aerial or seaport of debarkation as stated in Marine Corps Order 4200.33 (December 2000). To ensure support is available in all mission scenarios (peacetime, wartime, and operations other than war), the program manager must consider how the weapon system and equipment will be supported if the supporting contractor does not deploy to the theater. The AOA conducted on the weapon system and equipment may show a cost savings or benefit of using the CLS, but the savings or benefit is not a benefit to the Marine Corps if the contractors cannot meet readiness requirements during wartime.

b. Transparency

CLS should be transparent to the operating forces. The operating forces and their supply activities must be able to order materiel using the USMC Logistics Automated Information System (LOGAIS). This system directs the requirement to the appropriate source of supply. The CLS process should support the requesting unit's requirements. The process should not increase the workload and should not necessitate specialized processing actions. [Ref. 15]

c. Peacetime Training and Rotational Base

The PM must consider the need to maintain a peacetime training and rotational base for military technical personnel (manpower and training requirements data provided from the Training Planning Process Methodology (TRPPM) plan). [Ref. 15]

d. Training and Training Support

Training and Training Support identify all processes, procedures, techniques, training devices, and equipment used in training personnel to operate and to maintain new equipment. This includes initial training to place new equipment into service, new equipment training, and follow-on training. The objective of training, training support analysis and documentation is to ensure that all training resources are coordinated to coincide with the fielding, operation, and maintenance of the equipment. Follow-on training efforts will support the equipment throughout its life cycle. [Ref. 15]

e. Manpower and Personnel

Manpower and Personnel identify and establish the military and civilian personnel manning level, skill and grade level requirements for operating and maintaining of the equipment in peacetime and wartime environments. The objective of manpower and personnel analysis and documentation is to determine the appropriate number of adequately trained and sufficiently experienced personnel necessary to support the equipment throughout the equipment is life cycle. The Occupational Field Manager at Total Force Structure, MCCDC provides information on the required and available personnel skill and impact on force structure (ship-to-shore rotation, TRPPM analyses, manpower and training analyses, etc.) [Ref. 15]

f. Design Interface

Contractor information systems must interface with the Marine Corps and DoD Logistics Information Systems. When weighing the computer resources element, the program manager includes those elements necessary to interface between Government and contractor entities. Any links between Government and contractor automated systems must not place additional burdens on the Marine forces. The contractor and Government must have the capability to obtain, review and monitor information required in the logistical support of the weapon systems. [Ref. 15]

g. Security

The program manager must weigh the following security considerations: information access, clearances required, physical security, personnel security, and force protection. All security considerations must appear in the form of contract clauses, modifications, and stipulations. It should be noted that while Marine Corps policy on contractors in the area of operation is in "concept development," the following security-related considerations must be evaluated in the decision process:

- Accounting for contractors in theater
- Legal jurisdiction over contractors in theater
- Use of host or third-country nationals
- Impact on maintenance and supply support
- Modifications to contingency plans to include Time-Phased Force Deployment Data (TPFDD)
- Communications/COMSEC
- Interoperability and/or
- Integration of contractor personnel into USMC force structure

[Ref. 15]

h. Support for Contractors

Additional consideration must be given to the cost associated with providing support to contractors in garrison and seaports of debarkation as opposed to use of organic support assets. The program manager must ascertain the cost to provide:

- Training and administrative processing for contractor personnel before deployment

- Transportation of contractors and contractor equipment to and from a theater, such as TPFDD
- Food, clothing, shelter, health and comfort, and welfare for contractor personnel in the theater

[Ref. 15]

i. Support Equipment

This term applies to all equipment (mobile or fixed) required to support the operating and maintaining of defense systems, including handling equipment, tools, calibration equipment, manuals, automatic test equipment, and other single- or multi-use support items. Acquisition logistics efforts should reduce or eliminate the number of tools and support equipment required to maintain the system. If tools or support equipment are necessary, standardization should be considered. Support equipment is identified and developed concurrently with the development of the weapon system because this ensures that the necessary support equipment is available at the correct operational site and also in the maintenance echelons for operation and maintenance of materiel equipment throughout its life cycle. Requirements for support equipment are sent to the PM Test, Measurement and Diagnostic Equipment (TMDE) within MARCORSYSCOM. [Ref. 15]

j. Technical Data

The requirements for technical information (technical manuals, parts lists, specifications, etc.) is done by considering the cost and availability of long term access to data required for competitive sourcing of systems support (weapon system/equipment) throughout the life cycle under both contractor and organic support. [Ref. 15]

k. Maintenance Support

The Program Maintenance Plan (PMP) identifies the maintenance levels required to support the weapon system/equipment throughout its life cycle. The PMP is the principal analytical tool used to provide a basis for developing of all other logistics support requirements. The objectives of maintenance planning are to ensure the development of a minimum set of maintenance requirements necessary to operate the equipment at assigned readiness threshold throughout its life cycle; to assign maintenance tasks to the echelons where they will be accomplished most effectively and efficiently;

and to provide information that is necessary for logistics support planning and management decisions. The program manager also evaluates the costs and availability of repair and spare parts required to maintain stock levels to meet readiness requirements according with the maintenance concept. [Ref. 15]

l. Supply Support

Supply Support consists of all management actions, procedures, and techniques used in acquisition, cataloging, receiving, storing, transferring, issuing, and disposing. This planning and analysis is not limited to the equipment, but also encompasses all spare and repair parts, support equipment, and capabilities necessary to meet surge requirements, as well as Test, Measurement, and Diagnostics Equipment (TMDE). The objective is to ensure that the supply support necessary to operate and to maintain the equipment throughout its life cycle exists at all proper echelons of supply and maintenance prior to fielding. [Ref. 15]

m. Facilities

A facilities representative identifies, analyzes, and documents facilities required for operating and maintaining equipment throughout its life cycle. This process translates missions, tasks, and functions into facilities requirements and then compares them to the available assets to determine deficiencies and excesses or both. Facilities analysis and planning also includes, but is not limited to, the analysis of:

- Requirements for New Facilities
- Modification of Existing Facilities
- Environmental, Safety, and Health (ESH) Requirements
- Training and Training Support
- Maintenance
- Supply Support
- MILCON Funding Constraints

[Ref. 15]

n. Environmental Safety and Health (ESH)

ESH should be evaluated using both the cost and the risk associated with conformance to ESH regulations. [Ref. 15]

o. Packaging, Handling, Storage, and Transportation (PHS&T)

PHS&T encompasses all processes, procedures, and design considerations related to aspects of transporting the equipment throughout its life cycle. The objective of PHS&T analysis, planning, and documentation is to ensure that all equipment and support items are transportable, able to be properly packaged for short-term and long-term storage. The PM is required to evaluate the cost and risk associated with PHS&T, focusing on meeting operational readiness requirements. In-transit visibility from supplier to customer using Marine Corps LOGAIS is a requirement. [Ref. 15]

p. Cost Effectiveness and Risk

The PM is responsible for taking a program from the initial acquisition planning through disposal ("cradle to grave") and as such must balance cost, schedule, and performance against requirements. Some of the key considerations that must be weighed are the capability and cost-effectiveness to support the weapon system and equipment as it relates to the density of equipment and its geographical dispersion, the cost and risks associated with contingency planning to transform to organic support, the cost and risk of establishing organic support for an unstable design, to include pre-planned product improvement, and the cost and risk of constantly changing commercial markets that may result in discontinued and non-availability of support. [Ref. 15]

In conclusion, the length of the planned life cycle may indicate that CLS is the best alternative, or it may indicate that organic support is the best choice. If CLS is chosen, it must not only be evaluated as the least costly life-cycle-cost alternative, but as the solution, that optimizes force sustainment and readiness.

5. Decision Process

The following workflow diagram, with accompanying explanatory text, illustrates the decision process, which the program Integrated Product Team uses to determine the optimum methodology for support. The specific approach to be used considers the maintenance philosophy, the existing commercial support structure, the existing organic support structure, the operational environment, and the contemplated life of the system. Appendix A of this thesis presents the required checklist to be used by the Acquisition Logistics Support Working Group during the analysis of the alternative decision process. [Ref. 15]

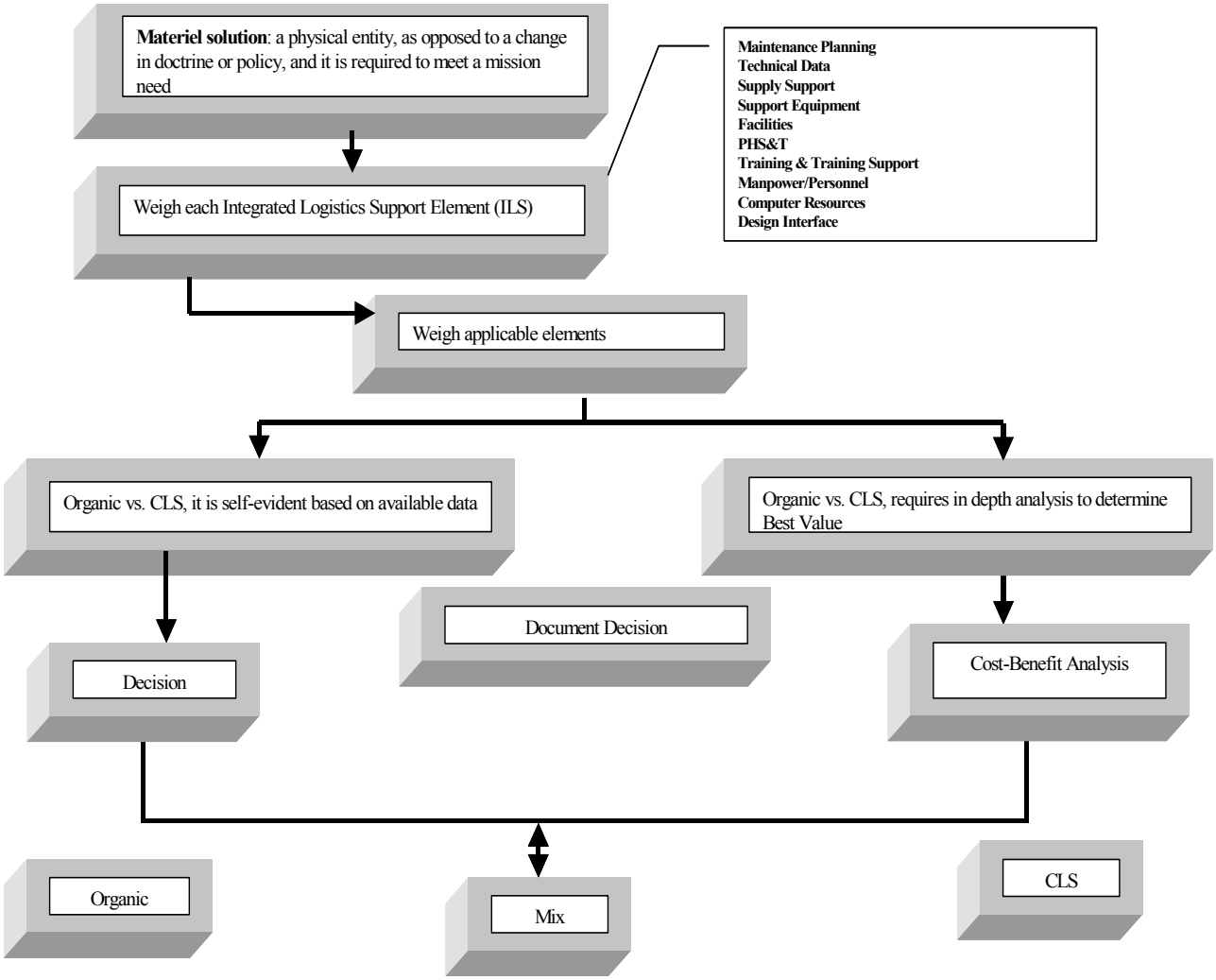

Figure 2.3 Decision Process From [Ref. 15]

a. Weigh Each ILS Element

Given the unique nature of each program, certain ILS elements carry more weight based on existing conditions and may or may not apply. This step in the decision

process allows the PM to best meet program needs. Each element's level of importance or applicability to the specific program is based on:

- Maintenance Concept
- Nature of the Weapon system/Equipment
  - Concept of Employment
  - Performance Requirements
  - Complexity
- Projected Cost
- Projected Distribution
- Planned Life Cycle
- Nature of Acquisition
  - Joint Acquisition
  - USMC Lead
  - Developmental
  - Non-Developmental
  - Abbreviated Acquisition Program

[Ref. 15]

b. Weigh Applicable ILS Elements

Based on information captured in the preceding step, the IPT examines each pertinent ILS element to determine if this element lends itself to CLS, organic support or a mixture of both. Areas of consideration include:

- Maintenance Planning: The approach used is the first step in the decision-making. Determining the level of maintenance, what support resources are required, and who will provide them are the most important factors in determining the support strategy. The Integrated Logistics Support Plan (ILSP) or the Logistics Support Strategy (LSS) documents this planning.
- Technical Data: The program manager shall provide for long-term access to data required for competitive sourcing of systems support throughout its lifecycle.
- Supply Support: This supports the maintenance concept. Transparency of providing, replenishment, ordering, shipping, storing, and accounting must be transparent to the Marine Forces when using CLS.
- Support Equipment: Support equipment requirements must be determined. What will it cost to provide support equipment organically compared with what it will cost to rely on contractor furnished support?

- Facilities: Consideration must be given to whether adequate facilities exist at the planned USMC sites or whether new or additional facilities will be required, or whether the repair will be done at the contractor's manufacturing plant. The contractor must develop space requirements as early as possible so that if new or modified facilities are required, funding can be programmed and budgeted in time to meet the operational need date.
- PHS&T: The advantages and disadvantages of CLS compared to Government handling of PHS&T must be weighed.
- Training and Training Support: The training plan must be analyzed weighing CLS against organic support requirements. Some factors for consideration are
  - Administration and oversight of CLS contracts (e.g. Government service representative (GSR) training)
  - Availability of MOS producing and commercial schools
  - Availability and requirements for training aids and devices
- Manpower and Personnel: When comparing CLS to organic support, the impact on structure must be considered in terms of cost, readiness, equipment density, on-hand Government expertise, and the administrative burden to the Marine Forces.
- Computer Resources: Existing procedures and restrictions apply to both CLS and organic support. (e.g., Marine Corps Common Hardware Suite, Navy Marine Corps Intranet, etc.)
- Design Interface: Existing procedures and restrictions apply to both CLS and organic support (e.g., Joint Technical Architecture, Navy Marine Corps Intranet, etc.)

[Ref. 15]

c. Organic vs. CLS Self-Evident

The program manager can make and can document the decision to use CLS in cases in which its use is self-evident. The decision process will continue by evaluating the remaining ILS elements. Examples are

- If the analysis of alternatives (AOA) indicates that it would be more beneficial for the Marine Corps to simply dispose of an item of equipment rather than repair it, the CLS may be used without the benefit of an in-depth analysis.
- If the majority of the system is proprietary, it may be more efficient to use CLS.

- If the concept of employment of the weapon system or equipment mandates the performance of organic maintenance, then CLS is not an option.

  [Ref. 15]

d. Organic vs. CLS Not Self-Evident

If a decision is not self-evident, the PM shall perform a Cost/Benefit Analysis to determine the best value for support. Particular attention should be paid to systems in which use, distribution, and availability have a potential negative impact on total force structure and readiness. During the course of and at the conclusion of the analysis of each element, the results must be compared to their effect on the remaining elements, since at any time during the analysis, certain ILS elements can impact the overall decision on whether to use CLS or organic support. [Ref. 15]

e. Document Decision

At the conclusion of the analysis of elements, the program manager will document the rationale used to arrive at the decision to use CLS, organic, or a combination of both. The decision process must be documented using the letter format depicted in Appendix B and included with all program documentation submitted to the Milestone Decision Authority (MDA) and posted to Command Automated Program/Information System (CAPS). [Ref. 15]

f. Transition Contingency Plan

To ensure that weapon system and equipment readiness levels are maintained, a contingency plan to shift from CLS to organic support must be included in the event that the CLS fails to meet the operational supportability requirements or is not viable due to threat conditions. [Ref. 15]

E. CHAPTER SUMMARY

Chapter II summarized the MTVR program history. Chapter II also provided overviews of the organic maintenance and the organic supply capabilities available in the Marine Corps. Additionally, this chapter further defined the concept of CLS. Finally, this chapter presented the decision support planning and decision process that Marine corps Ground Equipment PMs are required to use when considering CLS versus organic support.

III. CONTRACT DATA

A. INTRODUCTION

Chapter III introduces the Government requirements in relation to the vehicle system and provides an overview of the bilateral agreement used to award the MTVR Contractor Logistics Support (CLS) contract between the Marine Corps and the Oshkosh Truck Company (OTC). The chapter also presents the key performance parameters used to measure the contractor's performance. Additionally, this chapter surveys the scope, goals, purpose and requirements of the contract, as stated in the Statement of Work. Finally, this chapter examines incentives that can be used with this type of contract.

B. PROGRAM REQUIREMENTS

One of the primary goals of the Program Manager MTVR is to increase Reliability, Availability, Maintainability, and Durability (RAM-D). This section of this chapter presents the original vehicle requirements, the reasoning for implementing CLS, and the contract type used in the bilateral agreement between the Marine Corps and OTC.

1. Integrated Logistics Support Plan

The ILSP is a plan developed by the Program Manager MTVR; it describes the overall integrated logistics program requirements, tasks, milestones, and responsibilities for the MTVR program. The ILSP provides information and data to keep members of the management team updated as the MTVR effort progresses. Below are the MTVR's RAM-D requirements as they are listed in the ILSP.

> a. Reliability. The MTVR expects to demonstrate a minimum reliability of greater than 2,700 mean miles between operational mission failure and a 90% probability of completing a typical 200-mile mission (loaded) without experiencing a mission failure.
>
> b. Achieved/Availability. The availability (A_a) threshold for the MTVR is 89 percent. This is the percentage of time the equipment is operable over the operating and maintenance times.
>
> c. Maintainability. The MTVR must demonstrate a maintenance ratio in mean maintenance hours per mile (mmh/mi) of not more than .007 for organizational level maintenance, .002 for third echelon maintenance, and .022 for fourth echelon maintenance. Mean time to repair must not exceed 3 hours at organizational maintenance and 5 hours at intermediate

maintenance. The contractor is responsible to assure the vehicle maintainability by complying with the system's design characteristics that permit easy access to all items requiring periodic service and field maintenance.

d. Durability. The MTVR must demonstrate a 70% probability with 50% confidence of completing 32,180 km (20,000 miles) of operations without a major component durability failure.

[Ref. 16]

2. MTVR CLS Concept

The Program Manager MTVR implemented CLS as the primary means of logistical support for three reasons. This section will re-introduce the details of the first reason. In 1999, the Defense Systems Affordability Council (DSAC) identified 30 programs, 10 per military service, in different stages of the acquisition process and introduced two challenges for them. First, the programs needed to maintain or to improve readiness. Second, DSCA challenged them to reduce FY 2005 Operating & Servicing costs by 20%. The pilot programs were told to focus on three areas:

- Reliability and maintainability improvements
- Reduced supply chain response times
- Competitive sourcing of product support

The MTVR is one of the programs that are classified as a pilot program. The key focus of the pilot programs is the Reduction of Total Ownership Cost (R-TOC).

Program Manager MTVR implemented many different Acquisition Reform (AR) initiatives to reduce the TOC and to further streamline the acquisition process, including CLS. [Ref. 17]

The second reason for implementing the CLS is the Strom Thurmond National Defense Authorization Act of Fiscal Year 1999 specifying that the Marine Corps establish the Original Equipment Manufacturer (OEM), the Oshkosh Truck Company, as a Product Support Command. The Act also states that the OEM will perform CLS for the MTVR. [Ref. 18]

The final reason, which enabled the OTC to secure the sole source award of the CLS contract, is that the Marine Corps did not procure the technical data package for the

MTVR. All data that would enable another source to provide this service is proprietary to OTC. [Ref. 18]

Program Manager MTVR estimates that the CLS contract will save the Marine Corps $30 million or 15% of the Total Ownership Cost avoidance total. Figure 3.1 and Table 3.1 below depict the Total Ownership Cost avoidance breakdowns.

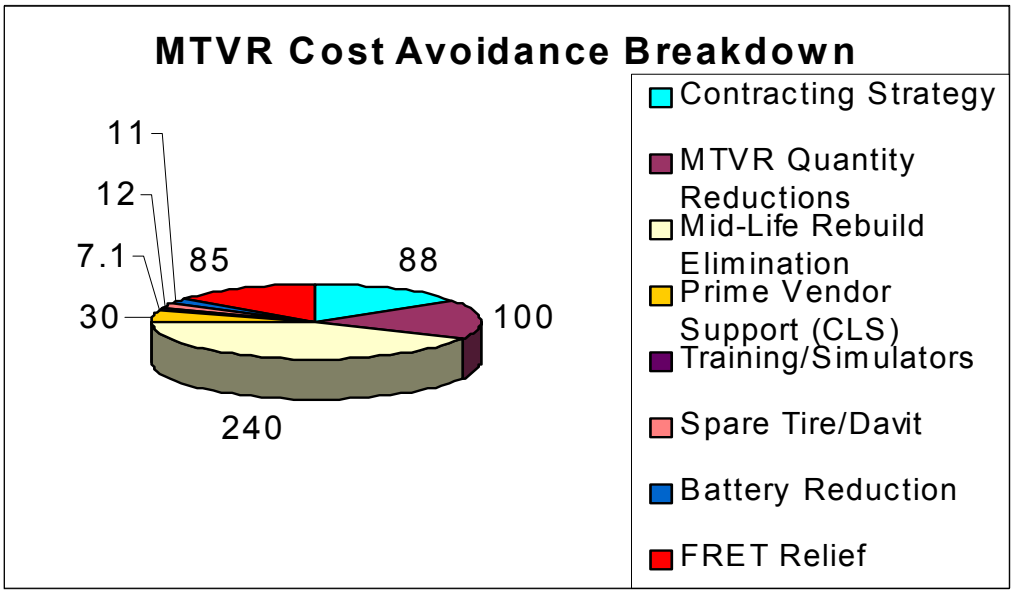

Figure 3.1 Cost Avoidance Breakdowns in Millions From [Ref. 19]

TOTAL OWNERSHIP COST-REDUCTION BASELINE: PROJECTED COST AVOIDANCE OF $546.6M	
MULTI-YEAR SAVINGS	$ 88M
QUANTITY REDUCTIONS	$100M
15% REPAIR PART REDUCTION	$ 30M
MIDLIFE REBUILD ELIMINATION	$240M
TRAINING/SIMULATORS	$ 7.1M
SPARE TIRE AND DAVIT	$ 12M
REDUCED BATTERY	$ 11M
O&S NOTIONAL MAINTENANCE	$58.5M

Table 3.1 Cost Avoidance Breakdowns From [Ref. 19]

C. MTVR CLS CONTRACT

In Chapter I, a brief overview of the CLS contract type was presented. This section provides a detailed overview of the contract type and defines its elements.

1. Contract Type

A bilateral agreement was reached on September 21,st 2001 between OTC and the Marine Corps. The contract type is a Firm-Fixed-Price (FFP), Indefinite Delivery-Indefinite Quantity (IDIQ) contract. The contract term is ten years, consisting of a three-year base period and seven independent one-year options, which can be awarded depending on the contractor's performance. Because the MTVR replaces the M809/M939 series truck, no historical data on reliability and maintenance costs are available. Therefore, it was determined in the Marine Corps' best interest to negotiate CLS support for the base lot of three years only, thus providing an opportunity to accumulate historical data. This accumulated data will provide a basis for predicting and negotiating the cost of each of the subsequent seven years. [Ref. 20]

The second element of the contract type used to award the CLS contract is IDIQ. Indefinite Delivery contracts are used "… to acquire supplies and/or services when the exact times and/or exact quantities of future deliveries are not known at the time of contract award." [Ref. 21] There are three types of indefinite delivery contracts. The type that is used in the CLS contract is indefinite quantity. FAR Part 16.504 defines indefinite quantity as:

> An indefinite-quantity contract provides for an indefinite quantity, within stated limits, of supplies or services during a fixed period. The Government places orders for individual requirements. Quantity limits may be stated as number of units or as dollar values. [Ref. 21]

FAR Part 16.504 also prescribes when a contracting officer should use indefinite quantity contracts.

> Contracting officers may use an indefinite-quantity contract when the Government cannot predetermine, above a specified minimum, the precise quantities of supplies or services that the Government will require during the contract period, and it is inadvisable for the Government to commit itself for more than a minimum quantity. The contracting officer should use an indefinite-quantity contract only when a recurring need is anticipated. [Ref 21]

The quantity limits for the MTVR CLS contract are stated in dollar values. The minimum and maximum amounts for the three-year base period are depicted in Table 3.3 below.

BASE LOT	LINE NUMBERS	MINIMUM	MAXIMUM
YEAR 1	0001-0007	$1,574,178	$2,706,483
YEAR 2	0008-0014	$2,037,614	$3,571,529
YEAR 3	0015-0022	$2,450,327	$3,999,737

Table 3.2 Quantity Maximums and Minimums for Three-Year Base Period

The FAR Part 16.504-(4)(c) also states "… the contracting officer must, to the maximum extent practicable, give preference to making multiple awards of indefinite-quantity contracts under a single solicitation for the same or similar supplies or services to two or more sources." [Ref 21]

Multiple-Award Contract (MAC) is a procurement method in which identical contracts are awarded to two or more offerors who provide the best value to the Government. MACs are the preferred method of contracting for Indefinite Quantity contracts. The advantage of multiple awards is they, by their nature, create the best value by allowing the Government to obtain the best expertise of each awardee relative to the actual requirements, which are often not clearly delineated until the ordering process.

2. CLS Requirements

Two of the key objectives in implementing the CLS contract were not to alter the current supply system and to use the existing Electronic Data Interface (EDI) for part ordering and invoicing. Although OTC had experience providing CLS for other military services, modifying their current systems in order to interface with Marine Corps' supply and disbursing systems was still necessary. The DoD authorized the MTVR Program Manager to establish the OTC as a Product Support Command. This authorizes the OTC to manage consumables and secondary repairables. The OTC was also assigned routing identifier codes (RIC) and is responsible for managing over 2,500 MTVR specific parts. These parts were given National Stock Numbers (NSN) and entered into the Federal Logistics Information System (FLIS). This enables using units to order them through

regular supply channels. All other common parts (approximately 1,000) are still managed by the Defense Logistic Agency (DLA). The OTC is required to provide a web site online where MILSTRIP requisitions can be viewed. The OTC is also interfaced with the Standard Accounting and Budgeting Reporting System (SABRS). This system enables the units that order parts or maintenance services from OTC to pay for the parts and maintenance services through the normal channels. [Ref 20]

D. STATEMENT OF WORK (SOW)

This section presents the scope, goals, purpose and requirements of the CLS contract as stated in the contract.

1. Scope

This Statement of Work (SOW) covers Contractor Logistics Support (CLS) services/maintenance to be provided by the Medium Tactical Vehicle Replacement (MTVR) program, to include all MTVR variants. This SOW identifies the purpose of the work to be completed. The contractor shall provide the repair parts, qualified personnel and material to perform the following services in accordance with this SOW. [Ref. 20]

2. Goals

The goals of this program are to establish and to maintain overall logistics support for the MTVR truck, to decrease order-shipping time for delivery of repair parts, secondary reparables, to and to reduce Marine Corps Inventory requirements, as well as to reduce the total vehicle life-cycle-cost. [Ref. 20]

3. Purpose

The purpose of this SOW is for the contractor to prescribe the following:

- Supply chain management
- Supply support for all parts used on MTVR trucks, except for DLA managed common parts
- Program management to coordinate and to supervise the activities of various subcontractors and vendors associated with this task
- On-site personnel support

- Information system management and live database support via web site to track parts requisitions and total life-cycle cost of the vehicle
- Deployed personnel support
- Twenty-four hours, seven days a week customer service
- Interactive Electronic Technical Manual (IETM) Trouble Desk
- Maintenance of Technical Manual data
- Calibration of Electronic Control Module (ECM)
- Wheel Alignment
- Surge capacity for contingencies
- Intermediate level repair of major MTVR system components
- Depot level repair of the MTVR truck
- Warranty management and repair for parts covered under all commercial warranties
- Special Tool Sets, (2^{nd} and 3^{rd} echelon Tool Kits) [Ref. 20]

4. Requirements

This program shall include, as a minimum, the following tasks for which the contractor is responsible for providing Program Management, Supply Support, Services, and Maintenance. [Ref. 20]

3.2 Spare Parts/Secondary Reparables Information Database: The contractor shall maintain a current on-line, real time database, and provide spare parts, related information and repair status to include date inducted, location, required delivery date, actual delivery date, and support costs as delineated in the following sub-tasks. All information will be provided on-line and shall be accessible to the Government via an on-line system web site. As a minimum the following data elements are required: nomenclature, document number, national stock number (NSN), part number, quantity, priority, status, date of receipt of document, date item shipped, mode of shipment, tracking number, and estimated delivery date. This data warehouse shall be accessible through search engines developed by the contractor, which will allow data mining for any elements resident in the warehouse. In order to provide visibility to the customer, the contractor shall provide the current status of requested materials and service via an on-line system (web-site). [Ref. 20]

3.4 Obsolete/Replacement Parts: The contractor shall notify the Contracting Officer with an informational copy to MARCORSYSCOM, Transportation, MCLB, Albany, GA, of any part that has been superceded due to obsolescence or changing of a part. [Ref. 20]

3.6 Procurement of Repair Parts: The contractor shall be responsible for the procurement and delivery of all MTVR truck unique repair parts. [Ref. 20]

3.6.1 Delivery of Repair Parts: The contractor shall ensure that their unique parts support system supports the timely delivery of repair parts in accordance with paragraph 3.6.3 of this SOW. Delivery may be required in CONUS or OCONUS using various modes of commercial or Government transportation. [Ref. 20]

3.6.2 Delivery Schedule: Required delivery time for orders for OTC unique (MA9) NSNs will be determined by the following priorities. The priority code will be identified on the requisition.

PRIORITY CODE	REQUISITION PRIORITY	REQUIRED DELIVERY
1 – 2	Category A	48 Hours
3	Category B	2 Days
4 – 15	Category C	5 Calendar Days

Table 3.3 Delivery Schedule From [Ref. 20]

3.9 Maintenance: The contractor shall be responsible for the overhaul and repair of the MTVR Truck and selected components, as requested. [Ref. 20]

3.9.2.1 Overhaul of MTVR Truck Components: Component overhaul shall be conducted either on site or at the contractor's facility. When an engine, transmission, axle assembly, or transfer assembly is forwarded to the contractor for overhaul, it shall be repaired or completed in accordance with, the manufacturer's overhaul procedures and standards, and covered by all applicable commercial warranties. The components for the MTVR truck shall be returned to the customer in 30 calendar days or less, after receipt of the equipment and authorization by the PCO or his/her duly appointed representative by the contractor. The estimated overhaul cost shall be provided upon induction of the asset. [Ref. 20]

3.9.3 Repair of MTVR Truck Components: Component repairs may be conducted either on-site or at the subcontractor or contractor's facility. The contractor shall repair all items in accordance with the manufacturers

repair procedures and standards, and covered by all applicable commercial warranties. A component for the MTVR Truck shall be returned to the customer within three working days, upon receipt of the equipment and authorization by the PCO or his/her duly appointed representative by the subcontractor or contractor. The estimated repair cost shall be provided upon induction of the asset in response to the Government's requirement. [Ref. 20]

5. Performance Measurement

Presented below are the criteria, stated in Statement of Work, which are used to determine the contractor's performance.

The contract will be evaluated for exercising option years based on the following criteria:

- Average number of delivery days for all orders based on priority of requisition
- Average number of repair days for secondary reparables
- Maintain overall readiness of MTVR truck fleet above 90% except when readiness is adversely affected by situations and/or conditions outside the control of the contractor [Ref. 20]

a. Performance Enforcement

The CLS contract does not have any method of enforcing contractor performance. The only means of enforcing the contractor's performance are through traditional methods such as: the "liquidated damages," "termination for convenience" and "termination for default" clauses.

b. Performance Incentives

The CLS contract does not have any method of incentivizing the contractor's performance. Incentives were not used in this contract..

E. CONTRACTOR INCENTIVES

By relating the amount of profit or fee payable under the contract to the contractor's performance, a contractor can be incentivized to perform to whatever standards are agreed upon in the contract. A contracting officer can use incentives when an FFP contract is appropriate, and it is possible to obtain the required supplies or

services at lower costs, with improved delivery schedule, or with increased technical performance.

Although incentives are available, the MTVR CLS contract did not have any incentives written into the contract. There are many different means to incentivize a contractor. For the purpose of the analysis chapter, this section will define award fee and award term.

1. Award Fee Incentive

An award fee-type incentive can be used with cost-reimbursement-type contracts or with fixed-price-type contracts. For the purpose of this thesis, this section presents usage of the award fee with a firm-fix-price contract. The award fee normally consists of a base amount (which may be zero) fixed at inception of the contract and an award amount, based on a judgmental evaluation by the Government, sufficient to provide motivation for excellence in contract performance. The award fee, when properly used, is a valuable tool. Its application is intended to motivate the contractor's performance in those areas critical to program success (e.g., technical, logistics support, cost, and schedule) that are susceptible to judgmental and qualitative measurement and evaluation. [Ref. 22]

This subjective evaluation of contractor performance can be supported, however, by objective measurements as well. The award fee provides for a pool of dollars that can be earned based upon the Government's evaluation of the contractor's performance in those critical areas. By entering into an award fee arrangement, the Contracting Officer initiates a process that incentivizes a contractor to improve performance and records the Government's assessment of the contractor's progress. In both selecting an award fee incentive and developing the award fee strategy, consider interrelated factors such as the dollar value, complexity and criticality of the acquisition; the availability of Government resources to monitor and evaluate performance; and the benefits expected to result from such Government oversight. Contracts containing the award fee incentive require additional administrative and management effort and should only be used when the contract amount, performance period, and expected benefits warrant the additional administrative and management effort. Once the decision has been made to include the award fee incentive, the evaluation plan and organizational structure must be tailored to

meet the needs of that particular acquisition. The Federal Acquisition Regulation (FAR) provide guidelines on the use of award fee incentives. Listed below is an extract from FAR Part 16.404, which provides guidelines for the use an award fee with a fixed-price contract:

> (a) Award fee provisions may be used in fixed-price contracts when the Government wishes to motivate a contractor and other incentives cannot be used because contractor performance cannot be measured objectively. Such contracts shall --
>
> (1) Establish a fixed price (including normal profit) for the effort. This price will be paid for satisfactory contract performance. Award fee earned (if any) will be paid in addition to that fixed price; and
>
> (2) Provide for periodic evaluation of the contractor's performance against an award fee plan.
>
> (b) A solicitation-contemplating award of a fixed-price contract with award fee shall not be issued unless the following conditions exist:
>
> (1) The administrative costs of conducting award fee evaluations are not expected to exceed the expected benefits;
>
> (2) Procedures have been established for conducting the award fee evaluation;
>
> (3) The award fee board has been established; and
>
> (4) An individual above the level of the contracting officer approved the fixed-price-award-fee incentive. [Ref. 21]

2. Award Term

An award-term is used to extend the contract period of performance. The contractor earns the award term by rendering excellent service. An award term is not an option. An option is exercised as a unilateral right of the Government. An award term entitles a contractor to an extension as long as the Government has a continuing need for the service and funds are available. The award-term concept is an adaptation of the commercial industry practice of establishing long-term relationships with quality contractors. The appeal to the Government of this business arrangement incentive is a continued relationship with a proven and reliable producer of quality goods or services. For the contractors, the motivation is the possibility of maintaining a stable, partnering

relationship in their business base. An award term incentive requires three contractual elements:

- A contract line item for each prospective award term
- An award-term clause that describes the terms of the incentive
- An award-term plan that describes the incentive criteria

"Award-term" can be best described as a derivative of the award fee. The difference is that the contractor earns additional periods of performance instead of award fee. The process for rewarding the contractor with the additional contract term is identical to award fee. An Award Term Review Board (ATRB) uses an Award Term Plan (ATP) to evaluate contractor performance and makes a recommendation to a Term Determining Official (TDO). The TDO is responsible for making the final decision on the contractor's score for that period. Based on the contractor's cumulative score, the contract's performance period can be extended or reduced. Due to the additional administrative and management effort and cost of maintaining the award-term process, an analysis should be performed before implementing a contract with an award-term clause. The analysis should show that the additional effort and cost to administer and to evaluate performance associated with the award term process is justified by the expected benefits. [Ref. 22]

F. CHAPTER SUMMARY

Chapter III provided an overview of the Government requirements in relation to the vehicle system and provided an overview of the bilateral agreement used to award the MTVR Contractor Logistics Support (CLS) contract between the Marine Corps and the Oshkosh Truck Company (OTC). The chapter also presented the key performance parameters used to measure performance of the contractor. Additionally, this chapter presented the scope, goals, purpose and requirements of the contract, as stated in the Statement of Work. Finally, this chapter presented incentives that can be used with this type of contract.

IV. DATA ANALYSIS

A. INTRODUCTION

Chapter IV provides an analysis of the information presented in the previous chapters. This chapter also assesses whether the Medium Tactical Vehicle Replacement (MTVR) Contractor Logistics Support (CLS) contract is indeed the most suitable for the vehicle system. Finally, this chapter presents how incentives, such as the award fee and the award term can incentivize the contractor.

B. PROGRAM REQUIREMENTS

Chapter III presented RAM-D criteria set forth in the Integrated Logistics Support Plan and the underlying reasons for the implementation of CLS. The analysis presented in this section is based on these elements.

The purpose for the use of CLS vice organic support is to reduce Total Ownership Cost (TOC). As stated in the previous chapter, the Defense Systems Affordability Council selected the MTVR program as a pilot program. The key focus areas that each program was encouraged to implement were

- Reliability and maintainability improvements
- Reduced supply chain response times
- Competitive sourcing of product support.

The section analyzes the MTVR CLS contract and addresses these key functional areas as they were presented in the contract.

1. Reliability

Chapter III presented the RAM-D standards set forth in the ILSP. The contractor is responsible for meeting these requirements. Unfortunately, the MTVR CLS contract does specify that the contractor shall improve reliability. Reliability is a key design characteristic in determining a product's ability to perform its designated function when called upon. Without the necessary inherent reliability designed into a product, it will eventually fail, as measured by reduced performance, safety problems, and increased logistics effort. PM MTVR and OTC excelled in designing system reliability in the development of the vehicle.

The CLS contract fails to expand these reliability requirements from the vehicle system design to the operational support.

The contractor's sole requirement is to meet those objectives established the contract. Many different methodologies are at the contactor's disposal to reach these objectives. Some of these methods might be advantageous to the Government, while others might not. For example, contractors may choose to carry a high inventory of secondary reparables in order to ensure they meets the fill and availability rates required by the contract. The Government benefits from high readiness rates, but at the same time, suffers from paying too much for parts. Another disadvantage is the contractors can increase the cost of parts and then pass the cost of extra storage space unto the Government. This may all sound unethical, but the contractor is performing within the terms of the contract. Simultaneously, because no incentive to improve reliability exists, the parts sold to the Government are not scrutinized for reliability improvement. Thus, the Government ends up paying more money on unimproved parts and storage space for them.

2. Supply Chain Response Times

The MTVR CLS contract was just awarded on September 21,st 2001 in conjunction with the fielding of the vehicle. The contract included a specified delivery schedule, which was presented in Chapter III. As of yet, it is too early to ascertain the contractor's performance in this area; however, there are no contract incentives to improve response times, which may have improved the overall system readiness. The Marine Corps may not be aware of cost effective innovations that can improve supply chain performance, as the contractor does not have any incentives to explore them.

3. Competitive Sourcing of Product Support

Chapter III presented the underlying reasons as to why CLS was implemented as the primary source of Logistics for the MTVR. These reasons are briefly stated below:

- Defense Systems Affordability Council (DSAC) Pilot Program
- Strom Thurmond National Defense Authorization Act of Fiscal Year 1999
- Technical Data Package Ownership

Two out of three of these reasons restricted the program manager in the deciding how to implement CLS. This section discusses the disadvantages of restricting the ability of the PM to award the CLS contract competitively.

a. Strom Thurmond National Defense Authorization Act of Fiscal Year 1999

The Strom Thurmond National Defense Authorization Act of Fiscal Year 1999 stated that the contractor who earned the production contract of the MTVR would also be awarded the CLS contract. This type of action restricts the program manager's ability to compete the CLS contract. By going sole-source the Government is automatically establishing a long-term relationship with the Original Equipment Manufacturer (OEM), in which the Government is dependant on the OEM.

Although some benefits can be reaped from obtaining CLS from the OEM, some adverse impacts also exist. One of the key impacts of the sole-source contract with the OEM is foregoing the opportunities that would be obtained through a full and open competition. By eliminating other competitors, the Government is eliminating the competitive forces in an economic marketplace. Another adverse impact of going sole-source is cost growth cannot be adequately controlled.

To avoid such adverse impacts, careful consideration should be taken during the Acquisition Planning stage with regard to long-term relationships that are sole-source with the OEM. In addition, how they affect the implementation of CLS must be considered.

b. Technical Package Ownership

Early in the acquisition process the decision was made not to purchase the technical data package from OTC. This decision has limited the program manager's ability to compete the CLS contract because all the data that would enable another source to provide this service is proprietary to OTC.

By purchasing the Technical Data Package (TDP) from the contractor, the Government obtains the opportunity to compete the CLS contract among various contractors and to develop a secondary source of support. Therefore, the TDP simultaneously allows the Government the opportunity to increase support capabilities and to maximize competition in order to obtain the best value product. Purchasing the TDP

may be initially costly, but the Government gains flexibility in contracting for Contractor Logistics Support services.

C. CONTRACT TYPE

In Chapter III, the MTVR CLS contract type was presented. This section provides an analysis of different elements that comprise the MTVR CLS contract.

1. Firm-Fixed-Price (FFP)

A FFP contract provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract. The contractor assumes maximum risk and full responsibility for all costs when using this contract type and result in either a profit or a loss for the contractor. No incentives were used in conjunction with the MTVR CLS contract, although by using this type of contract, there is one underlying incentive: This contract provides maximum incentive for the contractor to control costs in meeting the stated terms of the contract. Therefore, the contractor would be reluctant to begin any additional functions that would increase the cost. For example, if the Government wanted the contractor to improve reliability by starting a Reliability Incentive Program, the contractor would require a modification to the contract because under the current FFP contract type, the payoff is limited by the costs associated with satisfying the terms of the contract. Anything the contractor performs beyond these terms is considered goodwill on the contractor's behalf. Fixed Price is the most suitable contract type for this type of contract, however incentives might be used to incentivize the contractor's performance regarding reliability and performance.

2. Indefinite Delivery-Indefinite Quantity (IDIQ)

In IDIQ contracts, the preference is for multiple awards. The MTVR CLS contract was awarded as a single award. As mentioned in the previous section, this is because of statutory requirements and the lack of technical data ownership. The single award has eliminated most of the potential that a multiple award could have harvested. A multiple award could have provided more contractors to compete support for the MTVR program. In essence, the industrial base could have been expanded. Had there been multiple contractors, the Government could have additional ramp-up capability in the event of contingency operations and could also have increased expertise among various

contractors. For example, Caterpillar, the recognized expert with respect to Caterpillar engines, could have been available as a contractor to rebuild and remanufacture the MTVR engines. Also, Eaton & Bosch could have been available as the experts in break systems. Allison could have been available to work directly with the transmissions. These other corporations still provide services to the Government under the current MTVR CLS contract; however, they are subcontractors to OTC and the Government is paying a mark-up fee to access them. To maximize the benefit of using indefinite delivery-indefinite quantity contracts, using multiple-award contracts benefits. The Office of Federal Procurement (OFPP), Best Practices for Multiple Award Task and Delivery Order Contracting state:

> In order for agencies to take continuous advantage of the benefits of competition after contract award, FASA provides that agencies may make multiple awards of task and delivery order contracts for the same or similar supplies or services (and from the same solicitation) to two or more sources. The use of multiple-award contracts allows agencies to take continuous advantage of the competitive forces of the commercial marketplace which will result in lower prices, better quality, reduced time from requirements identification to award, and improved contractor performance in satisfying customer requirements. [Ref 23]

A trade-off occurs when a program transitions from a single-award to a multiple-award contract. The capability to do "one stop shopping" is lost. At this point, the program manager should do a cost-benefit analysis to determine which method of awarding the contract would be most beneficial.

D. STATEMENT OF WORK

The MTVR has a hybrid statement of work. It uses some characteristics of design specifications while using some performance-based specifications. The Program Manager, MTVR, created a SOW that was broad in some aspects and detailed in others. This allowed the contractor some flexibility in responding to the solicitation, but not complete flexibility.

1. Performance-Based Work Statements

Although some performance-based specifications were used in the contract, the SOW is still not a pure performance-based approach. OFPP Policy Letter 91-2

established the policy of using a performance-based approach to service contracting. Listed below is an extract of the policy letter.

> *5. Policy*. It is the policy of the Federal Government that (1) agencies use performance-based contracting methods to the maximum extent practicable when acquiring services, and (2) agencies carefully select acquisition and contract administration strategies, methods, and techniques that best accommodate the requirements. In addition, agencies shall justify the use of other than performance-based contracting methods when acquiring services, and document affected contract files. Performance-based contracting methods consist of the following [Ref. 24]:
>
> *a. Statement of Work.* When preparing statements of work, agencies shall, to the maximum extent practicable, describe the work in terms of "what" is to get the required output rather than "how" the work is to be accomplished. To assist in refining statements of work, consideration shall be given to issuing draft solicitations. [Ref. 24]
>
> *b. Quality Assurance.* Agencies shall, to the maximum extent practicable, assign contractors full responsibility for quality performance. Agencies shall develop formal, measurable metrics in terms of quality, timeliness, quantity, etc.) Performance standards and surveillance plans to facilitate the assessment of contractor performance and the use of performance incentives and deduction schedules. Agencies shall, to the maximum extent practicable, avoid relying on cumbersome and intrusive process-oriented inspection and oversight programs to assess contractor performance. [Ref. 24]
>
> *c. Selection Procedures.* Agencies shall use competitive negotiations for acquisitions where the quality of performance over and above the minimum acceptable level will enhance agency mission accomplishment and be worth the corresponding increase in cost. This approach will apply to most technical and professional services. In such instances, contracting activities shall give careful consideration to developing evaluation and selection procedures that utilize quality-related factors such as: technical capability; management capability; cost realism; and past performance. These factors shall receive increased emphasis to the extent requirements are more complex and less clearly defined. The desired relative importance among these factors and between these factors and price shall be determined, and they shall be applied as stated in the solicitations. To ensure application of cost realism, cost proposals shall be reviewed to assess offerors understanding of the requirements and consistency with their technical proposals. Special attention shall be directed to limiting opportunities for technical leveling and technical transfusion. Technical leveling and technical transfusion discourage offerers from proposing innovative methods of performance and often result from repeated

discussions and the submission of revised offers based on these discussions. Opportunities for discussions and revisions of offers shall be limited to the extent practicable. Sealed bidding shall be used when the goal of the acquisition is to achieve the desired service at the lowest price with minimum stated acceptable quality. [Ref. 24]

d. Contract Type. Contract types most likely to motivate contractors to perform at optimal levels hall be chosen. Fixed price contracts are appropriate for services that can be objectively defined and for which risk of performance is manageable. In most instances, services that are routine, frequently acquired, and require no more than a minimal acceptable level of performance fall into this category. For such acquisitions, performance-based statements of work and measurable performance standards and surveillance plans shall be developed and fixed price contracts shall be preferred over cost reimbursement contracts. Cost reimbursement contracts are appropriate for services that can only be defined in general terms and for which the risk of performance is not reasonably manageable. Complex or unique services for which quality of performance is paramount frequently fall into this category. Furthermore, to the maximum extent practicable, contracts shall include incentive provisions to ensure that contractors are rewarded for good performance and quality assurance deduction schedules to discourage unsatisfactory performance. These provisions hall be based on measurement against predetermined performance standards and surveillance plans. [Ref. 24]

e. Repetitive Requirements. When acquiring services, which previously have been provided by contract, agencies shall rely on the experience gained from the prior contract to incorporate performance-based acquisition methods. For such follow-on requirements, statements of work shall further describe the services in terms of "what" is to be performed, and performance standards and surveillance plans shall be more definitive than those for the prior acquisition. Where appropriate, conversion from a cost reimbursement to fixed price arrangement shall be more definitive than those for the prior acquisition. Where price arrangement shall be accomplished and, whenever possible, incentive provisions and quality assurance deduction schedules shall be introduced. [Ref. 24]

f. Multi-year Contracting. Agencies with statutory multiyear authority shall consider the use of such authority shall consider the use of such authority when acquiring services. The use of such authority will increase competition by offering a more stable, long-term contracting environment. It will also encourage offerors to invest in the development and implementation of innovative and efficient methods of performance by ensuring recoupment of these investments. [Ref. 24]

The contract statement of work, which is referred to as the Performance-Based Work Statement (PWS), is the groundwork for performance-based services. The PWS describes the effort in terms of measurable performance standards (outputs). These standards should include such elements as "what, when, where, how many, and how well" the work is to be performed. A Quality Assurance Plan (QAP), which directly corresponds to the performance standards and measures contractor performance, is needed to determine if contractor services meet contract PWS requirements. Positive and negative performance incentives, based on QAP measurements, should be included. The PWS Performance Standards, QAP and Incentives are interdependent and must be compatible in form, style, and substance, and should be cross-referenced. For a procurement to be a genuine PBSC, it should contain a PWS, QAP, and appropriate financial incentives. [Ref 24]

a. Contract Requirements

Chapter III presented the MTVR CLS contract requirements as stated in the SOW. The MTVR SOW adequately stated the "what, when, where, how many," but it omitted "how well" the work is to be performed. This leaves the SOW too broad, making it easy for the contractor to misinterpret the Government's desired end-state.

b. Quality Assurance Plan

The QAP defines what the Government must do to ensure that the contractor has performed in accordance with the PWS performance standards. This can range from a one-time inspection of a product or service to periodic in-process inspections of on-going product or service delivery. The QAP is needed to ensure the Government receives the quality of services specified in the contract. Since the QAP is intended to measure performance against standards in the PWS, these interdependent documents must be coordinated. Since the PWS, and QAP are intertwined, it is both effective and efficient to write them simultaneously. [Ref. 24]

The MTVR CLS contract incorporated Inspection and Acceptance clauses in Section E of the contract and Delivery and Performance clauses in Section F of

the contract. Both sections refer to the SOW in regards to the performance parameters that are applicable contractorily.

Chapter III presented the key performance parameters used in the MTVR SOW. This section re-states those parameters and analyzes their suitability for use in a PWS. The parameters used to determine the contractor's performance are listed below.

> The contract will be evaluated for exercising option years based on the following criteria:
>
> - Average number of delivery days for all orders based on priority of requisition.
> - Average number of repair days for secondary reparables.
> - Maintain overall readiness of MTVR truck fleet above 90% except when readiness is adversely affected by situations and/or conditions outside the control of the contractor. [Ref. 20]

The MTVR SOW did identify suitable outputs that could be used to determine the contractor's performance; however, the SOW failed to specify how or when the Marine Corps was planning to measure their performance and what levels of performance were considered poor, good, excellent or outstanding. By not defining the different levels of performance, the CLS contract performance is limited to two levels of performance: acceptable and unacceptable.

The underlying issue is that no precise method has been developed to measure the contractor's performance. This causes a distinct problem. How does the Government measure performance and how does it enforce performance? The MTVR CLS contract does not have any means of enforcing performance, except for the traditional contract clauses that are inserted in the contract (i.e., Liquidated Damages, Termination for Default, or Termination for Convenience). With no means to enforce contractor performance except for the traditional methods, the Contracting Officer's options are limited.

Currently, the MTVR CLS contract does not have a transition plan to transfer the requirements stated in the contract from the contractor to the existing organic

support structure. This further limits the Contracting Officer's ability to enforce contractor performance because any decision to terminate the contract can have catastrophic results on the support of the vehicle. This leaves the Contracting Officer only one tool to enforce contract performance. The liquidated damage clause has provisions to penalize the contractor. The liquidated damage clause should not be used as a form of performance enforcement. It definitely should not be used when the Government is trying to establish long-term relationships with its contractors.

c. Incentives

The MTVR contract did not contain any contractor incentives, but the next section will present how two different incentives could have been used to incentivize the contractor's performance.

E. CONTRACTOR INCENTIVES

Chapter III presented two similar incentives, namely the award fee and the award term. This section provides an overview of how they could have been used to incentivize the contractor's performance. "Incentives can be monetary or non-monetary, and should be positive but balanced, when necessary, with remedies for missing specific targets or objectives. They can be based on price, cost, schedule or performance. Regardless of the final composition and structure, the goal is to encourage and motivate optimal performance." [Ref. 25] Use of an award fee incentive motivates the contractor to concentrate resources in areas critical to program success. The award fee plan should identify the specific areas of performance that are most important to the program's success. For the purpose of this thesis, the incentives will target performance factors.

1. Award Fee

Award fee arrangements are appropriate when key elements of performance cannot be objectively or quantitatively measured and areas of importance may shift over the course of the contract. The first step that needs to be accomplished in developing an award fee plan is a trade-off analysis. The analysis determines if the additional administrative resources invested into performance measurement outweigh the benefits of implementing the award fee. The most obvious Government administrative cost is the labor resource dedicated to monitor performance continuously. Although monitoring

performance is necessary for all contract types, the award fee evaluation process is a structured approach that requires additional documentation and briefings.

The next step after determining that the award fee is beneficial to the program is determining what factors of performance you want to incentivize. For the purpose of this thesis, reliability is the factor we want to incentivize. After determining what to incentivize, you want to come to agreement with the contractor on the evaluation methods used. Once in agreement, the Government can determine how much it wants to award the contractor as a base and how much as a pool. The base fee is fixed at the inception of the contract and is regularly paid throughout the performance of the contract. The available award fee portion of the award fee pool is allocated to each award fee evaluation period and is earned based upon the contractor's performance for that evaluation period. For this particular contract, we want to focus on reliability. The performance measurements used to determine reliability are listed below.

The MTVR expects to demonstrate a minimum reliability of greater than 2,700 mean miles between operational mission failure and a 90% probability of completing a typical 200-mile mission (loaded) without experiencing a mission failure. The vehicle is designed to meet these requirements. However, What if one wanted to increase from 2,700 mean miles between operational mission failures to 3,700 or 4,700 or even 5,700 mean miles between operational mission failures? How about if you wanted to increase the readiness levels to 91% or 92% or as high as 98% readiness? How would one incentivize the contractor to perform at optimal levels of performance?

This example will focus on the first year out of three-year base period. The first step is to establish what the base and award fee pool percentages are going to be. In this scenario 2% of the total contract price establishes a base and an additional 10 % of total contract price establishes the award fee pool. Now we can determine how large the monetary incentive is going to be at a given level of performance. For this example, the total cost is stated for both maximum and minimum allowable costs stated in the contract.

	MINIMUM	MAXIMUM
TOTAL COST	$1,574,178	$2,706,483
BASE 2%	$31,484	$54,129
AWARD FEE	$157,418	$270,648

Table 4.1 First year of Three-Year Base period From [Ref. 20]

It is evident that the award fee could be a substantial amount of money depending on the total cost of the contract. The fee can be split in many different ways (i.e., time periods, threshold levels). For the purpose of this thesis, we will split the pool evenly into 4 parts, each representing a 2% increase in readiness. If the contractor is able to increase readiness levels and maintain it through out the year, the contractor is then eligible for the corresponding fee.

This is illustrated in Table 4.2 below.

	1	2	3	4	Total
Allocation %	25%	50%	75%	100%	100%
Allocation Min. $	$39,354.50	$78,709	$118,063.50	$157,418	$157,418
Allocation Max. $	$67,662	$135,324	$202,986	$270,648	$270,648
Readiness	92%	94%	96%	98%	

Table 4.2 Award fee Pool Breakdowns

2. Award Term

The Award Term works in the same fashion as the award fee except that it is incentivizing the contractor with a block of time. For example, if he increases readiness by 2%, from 90% to 92%, the contractor earns additional periods of performance instead of award fee. The philosophy behind award term lays the foundation for a "win-win" relationship. It emphasizes that quality performance by the contractor equals a continued business relationship subject to availability of funds and existence of a Government

requirement. “Single award Indefinite Delivery/Indefinite Quantity (ID/IQ) and Requirements contracts are best suited for application of award term. Using ID/IQ and requirements contracts allows additional contract term to be added without committing future fiscal year budget before it is appropriated.” [Ref. 22] Mark Felcyn, the Oshkosh Program Manager MTVR CLS, said “that if he had to choose between award fee and award term type incentives, I would choose award term because it further establishes a long-term relationship with the Marine Corps.” [Ref. 26]

The Award Term benefits both the customer and the contractor. It rewards quality contractors and facilitates process improvements and capital investments, which in turn should result in lower contract prices. It communicates the "health" of contract performance to the contractor through continuous and in-depth performance assessments. A successful, long-term contractual relationship provides the added benefit of reducing the manpower intensive effort of frequently reacquiring the services or supplies provided.

F. CHAPTER SUMMARY

Chapter IV provided an analysis of the rationale and reasoning that contributed to the use of CLS with the MTVR program. Chapter IV also analyzed the contract type used to award the MTVR CLS contract and discussed the use of multiple-award contracting as a viable alternative to single-award CLS contracting. Additionally, Chapter IV examined the SOW and the key performance parameters used to measure the contractor’s performance. Finally, chapter IV discussed how incentives, such as the award fee and the award term can incentivize the contractor in a CLS contract.

V. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

Chapter V provides conclusions drawn from analyzing the Medium Tactical Vehicle Replacement (MTVR) Contractor Logistics Support (CLS) contract, and provides recommendations on how to improve future CLS efforts. Additionally, Chapter V provides recommendations on areas of future research.

B. CONCLUSIONS AND RECOMMEDATIONS

Analysis of the MTVR CLS contract, interviews with Program Management personnel from both OTC and MARCORSYSCOM, and a review of the MTVR program data have led the researcher to the following conclusions and recommendations:

1. Program Requirements

Conclusion: Program Manager MTVR and Oshkosh Truck Corporation excelled in designing system reliability while developing the vehicle. However, the CLS contract fails to expand these reliability requirements from the vehicle system design to the operational support.

Recommendation: To prevent this problem from occurring, the contracting officer can specify in the CLS contract, that the contractor must initiate a Reliability Improvement Program (RIP). The contractor would be responsible for meeting the Reliability objectives stated in the contract and for developing a method of managing reliability improvement. Managing reliability improvement entails establishing the following functions:

- Tracking Data: Logistic reliability tracks the rate at which failures cause logistics demands to be placed on the system. If a failure creates a demand for supplies or maintenance, it affects logistic reliability regardless of its effect on the mission. While supply redundancy (i.e., extra parts) usually improves mission reliability, it almost always has an adverse impact on logistics footprint, transportation and burden.
- Conversion Factors: When a system is operated and maintained in the field, it will be subjected to various factors such as maintenance concept, maintenance

manning and skill levels, spare parts procurement and storage strategies, which affect the reliability achieved by the system in practice, even though these factors are beyond the control of the prime system contractor. Because of this, observed reliability is usually not the same as the reliability specified in system procurement contracts. It may be necessary to convert, or translate, contract reliability to operational reliability

- Reliability Growth: Reliability growth refers to the process of continuously improving the reliability of a product by successfully identifying and correcting design or manufacturing deficiencies and tracking reliability improvement as compared to increased contract cost.

By incorporating language in the CLS contract that requires the contractor to establish a RIP, the Contracting Officer ensures that the Marine Corps gains improved readiness as it replaces older technology with high quality, reliable parts through normal maintenance actions. This in turn, helps bridge the reliability requirements from the development of the vehicle to the operational support of the vehicle throughout the system life cycle.

Conclusion: Long-term relational contracts are equivalent to a double-edged sword for the Government. They can be very beneficial and at the same time, very restrictive. The combination of the Strom Thurmond National Defense Authorization Act of 1999 mandating the award of the CLS contract to the OEM and the Marine Corps' decision not to purchase the Technical Data Package limits the flexibility of the Contracting Officer to compete the CLS contract.

Recommendation: The Marine Corps should not wait until a late phase in the Acquisition Process to decide to use CLS. The decision should be made as early as possible and include the establishment of an Integrated Process Team that can tailor the CLS to meet the program requirements. The Contracting Officer (CO) has the expertise to tailor the contracting agreement to meet the program's requirements and by initially involving the CO, the CO will have time to conduct market research, and conduct a cost-benefit analysis of using single-award vice multi-award contracts. The Marine Corps' Decision Planning and Decision Process presented in Chapter II is a good tool to, but it still requires some fine-tuning. The decision planning and decision process focus on the

support that will be provided under the terms of the contract. Once the decision is made to use CLS, the decision process should have additional decision nodes to determine what type of contract should be awarded, what type of incentives, and what needs to be incentivized (i.e., cost, schedule, performance).

2. Contract Type

Conclusion: Firm-Fixed-Price Indefinite Delivery Indefinite Quantity contracts are the most suitable for the type of services being provided by the contractor, however, the IPT must decide how, either multiple-award or single-award, the contract will be awarded by the Contracting Officer.

Recommendation: As early as possible identify if CLS is the primary choice for logistics support of the program. Conduct a trade-off analysis to determine if "one stop shopping" (single-award) is more beneficial than a "low price technically acceptable" (multiple-award).

3. Statement of Work

Conclusion: A hybrid SOW does not work well with this type of contract. A pure Performance Work Statement is more suitable. In this particular contract no method of measuring the contractor's performance was developed. Therefore, the contractor's performance could only be classified into two categories, conforming or non-conforming.

.

Recommendation: Allow the contractor to assist in the development of the PWS. Establish an Integrated Product Team (IPT) consisting of all the key players (i.e., Program Management, Contracting Team, Users and Contractor). By doing this, the Government gains all of the contractor's work experience and knowledge in support of developing the PWS. Simultaneously, the contractor develops performance metrics so that the Government can use them to measure its performance. This is not difficult to develop considering the contractors already possess performance metrics to measure their own performance. Based on OTC's background, they are more than capable of contributing in the development of the PWS and the development of performance metrics. [Ref. 27]

4. Incentives

Conclusions: It is imperative to use incentives in this type of contract. The use of incentives provides a coduit to the contractor's innovation and expertise. Award-Term incentives are the most suitable type of incentives for this type of contract. The contractor apparently prefers more periods of performance vice a monetary profit. There may be new innovative, cost-effective ways of doing business because the Marine Corps is not incentivizing the contractor it is foregoing the opportunity of discovering those new ways.

Recommendation: As soon as the base period elapses, renegotiate a new contract that includes for potentially improving the system readiness in a cost effective manner. Preferably an award-term incentive vehicle should be used with the new contract.

C. FUTURE RESEARCH

Although CLS is not a new concept, the Government is still developing a structured process to determine its use. Listed below are some areas for future research with regards to the MTVR CLS contract and the use of CLS within the Marine Corps to support Ground Wheeled vehicles.

- Develop a method to capture the true costs of CLS: Currently there is no specific method to capture the true cost of using CLS for the MTVR exists. The vehicle has been fielded in three locations: Blount Island (Marine Prepositioning Force ships), Ft. Leonardwood (Operators School), and Camp Lejeune, North Carolina. Orders for common parts supporting the old five-ton truck fleet instead of the MTVR have been placed in Camp Pendleton, California using the OTC contract as a source of supply instead of the correct support sources. Decisions like this make it difficult to capture the true costs of supporting the MTVR using CLS.
- Perform a cost-benefit analysis to determine if CLS is indeed more beneficial than using organic support: Estimates have been made, but due to the previous area for further research, it is difficult to obtain concrete figures.

- Perform a revision of the CLS Decision Planning and Decision Process to include more information regarding contracting strategies used to award CLS contracts.

D. THESIS SUMMARY

The MTVR Program Management Team, including the Oshkosh Truck Company, excelled in developing and manufacturing a state-of-the-art 21st Century truck. The MTVR evolved from a joint Government/Industry effort to a validated systems concept. Contractor Logistics Support was implemented to further the Reduction of Total Ownership Costs (R-TOC) for the program. CLS programs are an option that program managers are using more frequently than previously.

This thesis analyzed the manner in which the Marine Corps bridged the designed requirements of the program to the operational support environment of CLS. Additionally, this thesis analyzed the contracting agreement, statement of work and incentives used to award the CLS contract. The author's findings demonstrated that the Marine Corps must improve its approach to using CLS.

LIST OF REFERENCES

1. Pallas, Spiros and Novak, Mike, Program Management Magazine Article, *Reduction of Total Ownership Cost (R-TOC)*, November–December Issue 2000.

2. Headquarters U.S. Marine Corps, " Marine Corps Order (MCO) 4200.33, Contractor Logistics Support (CLS) for Ground Equipment, Ground Weapon Systems, Munitions, and Information Systems", December 2000.

3. Department of Defense, Report to Congress, *Actions to Accelerate the Movement to the New Workforce Vision,* April 1998.

4. Department of Defense, "DoD 5000.2-R Mandatory Procedures for Major Defense Acquisition Programs (MDAPS) and Major Automated Information Systems (MAIS) Acquisition Programs", June 2001.

5. Brown, Susan A., Program Management Magazine Article, *Teaming Efforts Delivers State of the Art Truck for the Marines,* March-April 2000.

6. U.S. Marine Corps Combat Development Command, "Operational Requirements Document (ORD) for the Medium Tactical Vehicle Replacement NO. MOB 211.4.2A, January 1994.

7. U.S. Marine Corps Combat Development Command, "Mission Need Statement, Medium Tactical Vehicle Replacement NO. MOB 211.4.2A ", March 1992.

8. Marine Corps Systems Command, Program Management Transportation Systems, "Acquisition Strategy for the Medium Tactical Vehicle Replacement (MTVR)", November 2001.

9. Marine Corps Operational Test and Evaluation Activity, "Initial Operational Testing & Evaluation (IOT&E) Results", November 2000

10. Department of Defense, Joint Publication (Joint Pub) 1-02, Dictionary of Military and Associated Terms.

11. Headquarters U.S. Marine Corps, " Marine Corps Order (MCO) 4790.2B, "Marine Corps Integrated Maintenance Management System (MIMMS) Field Procedures Manual", March 1994.

12. U.S. Marine Corps Combat Development Command, *MCWP 4-6 MAGTF Supply Operations*, February 1996.

13. Brougher, David and Mach, Robert, Tecolote Research INC., *Medium Tactical Vehicle Replacement Life-cycle-cost Estimate*, November 2000

14. Marine Corps Systems Command, Program Analysis and Evaluation (PAE) Directorate, "U.S. Marine Corps Acquisition Procedures Handbook", September 1999.

15. Marine Corps Systems Command, Program Analysis and Evaluation (PAE) Directorate, "U.S. Marine Corps Acquisition Procedures Handbook Draft Chapter 25", Fall 2001

16. Marine Corps Systems Command, Program Management Transportation Systems, "Medium Tactical Vehicle Replacement Integrated Logistics Support Plan", April 1999.

17. PEO SYSCOM Commander's Conference Brief, Oct 2001

18. Chavers, Lou, Contract Negotiator, Contracts Department 891, Marine Corps Logistics Base Albany Georgia, *Business Clearance Memorandum # MCLBA 10080*, August 2001.

19. Morton, Major Lee U, Project Officer Medium Tactical Vehicle Replacement, *Reduction-Total Ownership Cost Brief*, March 2001.

20. Chavers, Lou, Contract Negotiator, Contracts Department 891, Marine Corps Logistics Base Albany Georgia, *Medium Tactical Vehicle Replacement Contracted Logistics Support Contract, Contract # M67004-01-D-0009*, September 2001.

21. Federal Government, Federal Acquisition Regulation, January 2001

22. Headquarters AFMC Directorate of Contracting, AFMC Award fee and Award Term Guide, November 2000

23. Office of Federal Procurement Policy, "Best Practices for Multiple Award Task and Delivery Order Contracting", July 1997.

24. Office of Federal Procurement Policy, "Guide to Best Practices for Performance-Based Services", April 1996

25. Gansler, John S., USD of AT&L, Memorandum for Service Acquisition Executives, "Incentive Strategies for Defense Acquisitions", January 2001

26. Felcyn, Mark, Program Manager, Oshkosh Truck Company, Phone Interview December 2001

27. Oshkosh Truck Company, Oshkosh, Wisconsin, Contractor Logistics Support Technical Approach, August 2001.

APPENDIX A ACQUISITION LOGISTICS SUPPORT WORKING GROUP CHECKLIST

ILS ELEMENT	RG	LS	IX
Maintenance Planning (refer to page 25-10) • Best supports level of maintenance? • Organizational? • Intermediate? • Depot? • CORE Capability? RATIONALE:			
Technical Data (refer to page 25-10) • Best provides long-term access to required data? • Most affordable alternative? RATIONALE:			
Supply Support (refer to page 25-10) • Most affordable Initial Issue Provisioning alternative? • Most affordable IIP alternative? • Most affordable Replenishment alternative? RATIONALE:			

ILS ELEMENT	RG	LS	IX
Support Equipment (refer to page 25-11) • Will additional support equipment be required? • Most affordable alternative? RATIONALE:			

Facilities (refer to page 25-11)
• Do adequate facilities exist?
  • Maintenance facility?
  • Storage facility?
• Most affordable alternative?
 	
RATIONALE:			

PHS&T (refer to page (25-11) • Most affordable alternative? RATIONALE:			

Training and training support (refer to page 25-11)
• Most affordable alternative?
  • Admin and oversight of CLS contracts?
  • Availability of initial and follow on training?
  • Availability of training aids/devices?
• Most affordable alternative?
  • Admin and oversight of CLS contracts?
  • Availability of initial and follow on training?
  • Availability of training aids/devices?
 	
RATIONALE:			

ILS ELEMENT	RG	LS	IX

Manpower and Personnel (refer to page 25-12)
• Most affordable alternative?
  • Operators
  • Maintainers
  • Overhead
• Results of Risk Management Assessment?
• Are Necessary Skill Sets Available?
• Will End Strength Decrease?
 	
RATIONALE:			

Computer Resources (refer to page 25-12) • Mandated by Current MARCORSYSCOM Policy RATIONALE:			

Design Interface (refer to page 25-12) • Mandated by Current MARCORSYSCOM Policy RATIONALE:			
CONCULSION			
Cost of Transition Contingency Plan	$		

APPENDIX B EXAMPLE FOR DOCUMENTATION OF ANALYSIS FORM LETTER

MEMORANDUM FOR THE RECORD

Subj: DOCUMENTATION OF ANALYSIS; MILESTONE (__)

1. Purpose. The purpose of this MEMORANDUM is to document the decision to use (Name one: Organic, Contractor Logistics Support (CLS), or a mixture of both) to support (Name the weapon system/equipment).

2. Background. (Provide program information and demonstrate need for in-depth analysis to make determination)

3. Method of Analysis. (Provide summary of how the analysis was conducted. May include summaries of the following:)

a. Scope of analysis

b. Assumptions

c. Concept of employment

d. Alternatives to be addressed

e. Schedule impacts

f. Cost as an Independent Variable (CAIV)

g. Manpower/Personnel issues

h. Design interface impacts

i. Readiness/Force structure impacts

4. Findings. (Self-explanatory)

Signed by PM _____

APPENDIX C STATEMENT OF WORK

1.0. **SCOPE.** This Statement of Work (SOW) covers Contractor Logistics Support (CLS) services/maintenance to be provided by the Medium Tactical Vehicle Replacement (MTVR) program, to include all MTVR variants. This SOW identifies the purpose of the work to be completed. The contractor shall provide the repair parts, qualified personnel and material to perform the following services in accordance with this SOW.

1.1 **PURPOSE**. The purpose of this SOW is for the contractor to prescribe the following:

- Supply chain management.
- Supply support for all parts used on MTVR trucks except DLA managed common parts.
- Program management to coordinate and supervise the activities of various subcontractors and vendors associated with this task.
- On-site personnel support.
- Information system management and live database support via a web site to track parts requisitions and total life-cycle-cost of the vehicle.
- Deployed personnel support.
- Twenty-four hours, seven days a week customer service availability.
- Interactive Electronic Technical Manual (IETM) Trouble Desk
- Maintenance of Technical Manual data
- Calibration of Electronic Control Module (ECM)
- Wheel Alignment
- Provide a surge capacity for contingencies
- Provide Intermediate level repair of major MTVR system components

- Provide depot level repair of the MTVR truck
- Warranty management and repair for parts covered under all commercial warranties
- Special Tool Sets, (2^{nd} and 3^{rd} echelon Tool Kits)

1.2 **GOALS**. The goals of this program are to establish and maintain overall logistics support for the MTVR truck, decrease order ship time for delivery of repair parts, secondary reparables, and reduce Marine Corps Inventory requirements, as well as reduce the total vehicle life-cycle-cost.

2.0 APPLICABLE DOCUMENTS

- DLAI 4140.55 Supply Discrepancy Report (SDR)
- DLAR 4500.15 Reporting of Transportation Discrepancies in Shipments
- DLAD 4155.24 Product Quality Deficiency Report
- DOD 4000.25-1-M MILSTRIP Procedures
- DOD 4000.25-2-M MILSTRIP – Military Standard
- MCO P4400.39G War Reserve Material
- MCO 4855.10B Product Quality Deficiency Report (PQDR)
- NAVMC 10772 Recommended Changes to Technical Publications
- Life Cycle Management Center Policy Statement, Number 03-00, dtd 24 April 00, Price Change Process for CLS National Stock Numbers (NSN's)
- Users Logistics Support Summary (ULSS) Number 007392-15
- SECNAVIST 4355.18A Reporting of Item and Packaging Discrepancies
- ATPD-2185A Purchase Description, Medium Tactical Vehicle Replacement

3.0 **REQUIREMENTS:** This program shall include as a minimum the following tasks for which the contractor is responsible for providing Program Management, Supply Support, Services, and Maintenance.

3.1 **Program Management**: The contractor shall establish and maintain a definitive management process to ensure the continuity of all contractor project execution and reporting. The contractor's Program Manager (PM) shall be the Government's point of contact on all contract performance issues. The contractor's PM shall also be responsible for tracking and reporting to the Government on all funded activities conducted by the contractor (See CDRL DI-MISC-80167A, Exhibit "A"). The contractor 's PM shall have the full authority and responsibility to ensure that the contractor meets schedule, cost, and quality performance requirements. The contractor's PM shall select the appropriate task leaders for all tasks or delivery orders received throughout the period of this contract. The contractor shall be responsible for performance of all sub-contractors.

3.2 **Spare Parts/Secondary Reparables Information Database**: The contractor shall maintain a current on-line, real time database, and provide spare parts, related information and repair status to include date inducted, location, required delivery date, actual delivery date, and support costs as delineated in the following sub-tasks. All information will be provided on-line and shall be accessible to the Government via an on-line system web site. As a minimum the following data elements are required: nomenclature, document number, national stock number (NSN), part number, quantity, priority, status, date of receipt of document, date item shipped, mode of shipment, tracking number, and estimated delivery date. This data warehouse shall be accessible through search engines developed by the contractor, which will allow data mining for any elements resident in the warehouse. In order to provide visibility to the customer, the contractor shall provide the current status of requested materials and service via an on-line system (web-site).

3.3 **Warranty**: Warranty repairs under the production contract shall be coordinated through the Field Service Representatives (FSRs). The FSR shall coordinate all CLS warranty repair parts issues after being contacted by the using unit. The using unit will prepare a PQDR per Marine Corps Order (MCO) 4855.10 for all warranty problems/repairs. MARCORSYSCOM, Transportation, MCLB, Albany, GA, will be the point of contact for all PQDR's. The contractor shall incorporate a hotlink to Marine Corps Logistics Base's (MCLB) website to access PQDR's by using units for submission. PQDR's will be processed upon receipt, and no later than 15 days for Category 1 (Safety, Readiness, or Deadline

reportable), and 30 days for Category 2 (All others). All replacement parts are warranted from one year from date of sale. The contractor agrees to provide all applicable passes through warranties per Contract DAAE07-99-C-M007. All warranties and procedures will be fully documented in the Warranty Supply Instruction (SI). If the Government receives a defective part that is covered by a warranty, the contractor shall provide and ship another part at no additional cost.

3.4 **Obsolete/Replacement Parts**: The contractor shall notify the Contracting Officer with an informational copy to MARCORSYSCOM, Transportation, MCLB, Albany, GA, of any part that has been superceded due to obsolescence or changing of a part.

3.5 **Shipping, Packaging, and Serviceability Discrepancies**: The contractor shall provide the Government with a replacement part or special tool no later than 48 hours after being notified by the Government COR of shipping, packaging, and serviceability discrepancies The contractor will incorporate a hotlink to MCLB's website to access a SDR form, Standard Form 364, in accordance with DLAI 4140.55 and DLAR 4500.15 by using units for submission once the website is available and functional and the appropriate address is provided to the contractor. SDR's will be processed upon receipt, or no later than 55 days.

3.6 **Procurement of Repair Parts**: The contractor shall be responsible for the procurement and delivery of all MTVR truck unique repair parts.

3.6.1 **Delivery of Repair Parts**: The contractor shall ensure that their unique parts support system supports the timely delivery of repair parts in accordance with paragraph 3.6.3 of this SOW. Delivery may be required in CONUS or OCONUS using various modes of commercial or Government transportation.

3.6.2 **Delivery Schedule**: Required delivery time for orders for OTC unique (MA9) NSNs will be determined by the following priorities. The priority code will be identified on the requisition.

Priorities	Required Delivery
A. Priority 01 and 02 requisitions	48 Hours
B. Priority 03 requisitions	2 Working Days
C. Priority 04 through 15 requisitions	5 Working Days

A working day constitutes the first normal working day (Monday through Friday), that the contractor receives the requisition, i.e. a priority 03 requisition submitted on Fridays update will be delivered no later than 0730 the following Wednesday. Orders with quantities above those

numbers considered reasonable for that particular unit, or that depletes the stock carried by the contractor, will not be processed without further justification.

3.6.3 **Receive/Transmit Requisitions via Electronic Commerce/Electronic Data Interchange (EC/EDI) Format**: The contractor shall have the ability to receive and transmit EC/EDI information via Defense Automatic Addressing System Center, (DAASC) direct from the Operating Forces, and to transmit supply and shipping status back.

3.6.4 **Common Repair Parts managed in DoD Inventories**: The USMC has authorized units to use Defense Logistics Agency (DLA*)* as the first Source Of Supply (SOS) for common items. Currently DLA manages approximately 52 percent of the MTVR truck NSN's, which are also used on other multiple weapon systems in the DoD Inventory. Using DLA, as a first SOS for the common NSNs will ensure continued buying leverage power for the DoD. DLA is equipped to forward stock-type requisitions onto the best value contractor via direct vendor delivery for fill in the event stocked-type items are unavailable for immediate issue at the time a requisition enters the system. Contractor and units are encouraged to utilize other 'in place' methodologies such as the DoD Electronic Mall (EMALL).

3.6.5 **War Reserve Material**: In accordance with MCO P4400.39G, War Reserve Material (WRM) Stocks provide the Marine Corps with the ability to quickly surge from peacetime operations to the higher tempo requirements of contingencies and wartime operations. The contractor, therefore, must ensure the capability to meet this surge requirement. Annually, by 15 February each year, the Government will transmit projected War Reserve Material Requirements (WRMR) electronically in the format of DMA/DME transactions. The WRMR is that portion of the WRM required to be on-hand upon commencement of hostilities. WRMR will be computed to cover a sustainment period of 90 days. This requirement will commence no later than six months after contractor receipt of said information.

3.7 **Procurement of Special Tools**: The contractor shall be responsible to provide and deliver all 2nd and 3rd echelon special tool sets listed in the parts list which shall be established at contract award. The composition of special tool sets shall be approved by the Government before their acquisition by the PCO or his/her duly appointed representative. The contractor shall label each tool with the appropriate part number. Packaging shall be in accordance with paragraph 7.0 of this SOW.

3.8 **Contractor Services and Maintenance**: The contractor shall be responsible for services and maintenance per the sub-paragraphs of this section.

3.8.1 **On-Site Field Service Representatives**: The contractor shall provide qualified FSRs in support of Blount Island Command (1 Rep), I MEF (2 Rep's), II MEF (2 Rep's), III MEF (1 Rep), CSSG-III (1 Rep) and Reserves (1 Rep). The FSR's shall provide technical assistance and repair, and shall advise and make recommendations, to orient and instruct key Maintenance personnel with respect to operation, maintenance, repair and parts supply support for the MTVR truck. The FSR's shall be thoroughly experienced and qualified by the contractor, to advise and instruct Government personnel in the operation, maintenance, repair and parts supply of the equipment furnished under this contract. The FSR's will be required to travel within the MEF, to include units located in different geographical areas. FSR's will be available on a full time basis, so that in the event of a leave or absence, there will be no loss of support to the Operating Forces.

3.8.2 **Field Service Representatives Roles and Responsibilities**: In addition to duties outlined in previous paragraphs, the FSR shall:

- Work schedule shall coincide with that of associated Government personnel.
- Shall investigate, recommend, and/or perform training as required.
- Shall be equipped with common and special tool sets, technical manuals, and test equipment.
- Shall have factory engineering and technical support.
- Shall provide technical assistance in failure diagnosis.
- Shall provide technical guidance to 2nd, 3rd, and 4th echelon personnel engaged in repairs.
- Shall provide a quarterly report listing all vehicles and units assisted, support provided, and actions taken.
- Shall be located with the central Intermediate Maintenance Activity (IMA) of the MEF.
- Shall coordinate his responsibilities with the Officer in Charge of the Maintenance Operations Section of the IMA.

- Provide monthly status reports to the supported Intermediate Service Support Activity, (ISSA), that provides the financial obligations and maintenance activities of the previous month. (See CDRL DI-MISC-80167A, Exhibit "A")

- Shall develop and submit configuration control documents, as necessary.

- Shall ensure incorporation of Government approved modifications to serialized MTVR fielded assets.

3.8.3 **Deployed Support**: The contractor shall provide deployed personnel for on-site support during contingencies and training exercises when instructed to do so by the MARCORSYSCOM, Transportation, MCLB, Albany, GA. The contractor shall determine, in coordination with the MARCORSYSCOM, Transportation, MCLB, Albany, GA, an adequate number of personnel to provide deployed support.

3.8.4 **Customer Service Representative**: The contractor shall provide customer service during Government working hours (CT 7:30 AM- 4:00 PM), and pager support during non-working hours, on a 24 hour per day, seven days a week basis. The contractor shall provide a report that details the number of service calls, type of problem, and resolution given, to MARCORSYSCOM, Transportation, MCLB, Albany, GA, on a quarterly basis.

3.8.5 **Interactive Electronic Technical Manual (IETM) Technical Representative Help Line**: The contractor shall provide a representative during Government working hours (CT 7:30 AM- 4:00 PM) to help resolve IETM technical problems.

3.8.6 **Maintenance of Technical Manual Data**: The contractor shall submit changes/updates to the Operator's Manual, Exhibit "E", and Maintenance IETM, Exhibit "F", for Government review and approval. Since the maintenance IETM contains the Operator's manual, all changes to the operator's manual shall be incorporated into the maintenance IETM. These updates to the manuals shall cover all requirements for operation, $2^{nd,}$ $3^{rd,}$ and 4^{th} echelon repair, (See attached Maintenance Allocation Chart, (MAC)) of the MTVR truck family of vehicles. Safety related updates shall be published upon Government approval by the PCO or his/her duly appointed representative. All other manual updates shall be accomplished using a schedule that is mutually agreed to by the Government and the contractor. See CDRLs 004 (Operators Manual) and 005 (IETM).

3.8.6.1 **Format and Style**: The format and writing style for changes and updates to the operators and maintenance IETM shall be in the same format and style used in the original submission. The use of digital photos, animation, and video clips in updating the IETM is acceptable.

3.8.6.2 **Validation**: The contractor shall validate all operators and maintenance TM and IETM changes.

3.8.6.3 **Verification**: Government verification shall be conducted for all operator's and maintenance manual changes to operation/maintenance procedures. Appropriate contractor personnel shall attend and assist at the Government's request. Upon completion of the verification effort, the contractor shall incorporate all verification changes and review comments. Submit validated changes to Commander, MARCORSYSCOM, Attn: PSD, 2033 Barnett Ave., Suite 315, Quantico, VA 22134-5010 for verification. See the basic contract for the applicable address. The contractor shall provide an informational copy to MARCORSYSCOM, Transportation, MCLB, Albany, GA.

3.8.6.4 **Copyright Material**: The contractor shall identify copyright material, if any, and shall obtain the written approvals of both the copyright owner and the Contracting Officer prior to its use. The contractor shall furnish appropriate copyright release giving the Government permission to reproduce and use copyrighted information. When the contractor uses a manual, which covers a vendor's components or a portion thereof, and the vendor's manual contains copyrighted material, the contractor shall be responsible for obtaining a copyright release from the vendor and providing the copyright release to Government. Copyright releases shall be furnished to the Government concurrent with the publication of the change.

3.8.6.5 **Technical Publications Control Log (TPCL)**: The contractor shall maintain a Microsoft Excel Technical Publications Control Log that contains a list of the changes resulting from: 1) Form NAVMC 10772 and 2) Approved Engineering Change Proposals (ECP), Request for Waiver (RFW), Design Change Notice (DCN), and Request for Deviation (RFD). The Technical Publications Control Log shall include technical publications changes by TM, task/paragraph, appendices, figure, item number, and include provisioning, transportability and training impacts resulting from paragraph 3.6.3 of this SOW and in accordance with Exhibit "F". All logistics data developed in accordance with this requirement shall be developed concurrent with the hardware development and submitted to the Government for verification 30 days after validation. The Technical Publications Control Log shall document the date a recommended and approved change, was received by the contractor, and shall track its progress and show the completed and distributed dates. See CDRL 006.

3.8.6.6 **Camera-ready Copy**. The Operator's Manual is a paper manual. Accordingly, the Government requires a camera-ready copy. The camera-ready copy is a reproducible copy suitable for any printing or reproduction process or for creating photolithographic negatives. Camera-ready copy is prepared from reproducible copy utilizing a positive-to-positive (Xerography) process or as a laser print copy of not less that 300 Dots Per Inch (DPI) generated directly from the automated database. Pages are high contract positives that are clear and legible with sharp, clear lines in both test and illustrations. Pages should meet the requirements of MIL-P-38790 and MIL-M-38784 as specified by the acquiring activity. Pages should not be less than quality level three as specified in GPO Publication 310.1 and reproducible copy paper stock should meet or exceed the requirements of JCP-D10 (20 pound). Substitute reproduction methods using other than a positive-to-positive process are not acceptable. The contractor, at no additional cost to the Government, shall replace camera-ready copy determined to be unacceptable by the acquiring activity. See CDRL 004 (Operator's manual).

3.8.6.7 **Printed Copies**. The contractor shall print approved changes for distribution in accordance with the Operators Manual CDRL 004. The contractor shall print change pages on JDP-A60 (50 pounds per 500 sheets) white paper. The printed pages will be of the same format, size and be hole punched as the basic manual. Change pages will be shrink wrapped for delivery to the distribution list contained in CDRL 004. See MIL-HDBK 38790 for guidance.

3.9 **Maintenance**: The contractor shall be responsible for the overhaul and repair of the MTVR Truck and selected components, as requested.

3.9.1 **Contractor Overhaul and Repair**: The contractor shall be responsible for the overhaul and repair of the MTVR truck, all variants and selected components when required. By definitions, an overhaul of the MTVR truck or components shall be returned to the customer as a condition code A (SERVICEABLE_ISSUABLE) without qualification. These assets shall be repaired or reconditioned with materials, which are serviceable and issuable to all customers without limitation or restriction and covered by all applicable commercial warranties. The contractor shall repair all items in accordance with the manufacturers repair procedures and standards.

3.9.2 **Overhaul of the MTVR Truck and all variants**: When an entire MTVR truck is forwarded to the contractor for overhaul it shall be overhauled in accordance with the manufacturer's repair procedures and standards and covered by all applicable commercial warranties. The MTVR truck shall be returned to the customer in 90 calendar days or less,

after receipt of the equipment and authorization by the PCO or his/her duly appointed representative by the contractor. The estimated overhaul costs shall be provided upon induction of the asset.

3.9.2.1 **Overhaul of MTVR Truck Components**: Component overhaul shall be conducted either on site or the contractor's facility. When an engine, transmission, axle assembly, or transfer assembly is forwarded to the contractor for overhaul it shall be repaired or completed in accordance with the manufacturers overhaul procedures and standards, and covered by all applicable commercial warranties. The components for the MTVR truck shall be returned to the customer in 30 calendar days or less, after receipt of the equipment and authorization by the PCO or his/her duly appointed representative by the contractor. The estimated overhaul cost shall be provided upon induction of the asset.

3.9.3 **Repair of MTVR Truck Components**: Component repairs may be conducted either on-site or at the subcontractor or contractor's facility. The contractor shall repair all items in accordance with the manufacturers repair procedures and standards, and covered by all applicable commercial warranties. A component for the MTVR Truck shall be returned to the customer within 3 working days, upon receipt of the equipment and authorization by the PCO or his/her duly appointed representative by the subcontractor or contractor. The estimated repair cost shall be provided upon induction of the asset in response to the Government's requirement.

3.9.3.1 **Repair of Deployed MTVR Truck Components**: The contractor will deliver repaired components of deploying units to the return address as indicated or to the nearest SMU Deployed Support Unit, (DSU), within three working days.

3.9.4 **Calibration of Engine Control Module (ECM)**: Upon determination that the ECM needs replacing, the using unit will contact their FSR. The FSR will coordinate to schedule the vehicle for service. The estimated calibration cost shall be provided with submission of the proposal in response to the Government's requirement. The representative will coordinate with the appropriate agencies to schedule the vehicle for service. This service will usually be performed at the using units maintenance facility by civilian contractors.

3.9.5 **Wheel Alignment**: Upon determination that wheel alignment is necessary; the using unit will contact their FSR. The FSR will coordinate to schedule the vehicle for service. The estimated alignment cost shall be provided with submission of the proposal in response to the Government's requirement. The representative will coordinate with the appropriate agencies to schedule the vehicle for service. Most likely, the service will have to be performed off base at properly equipped service facilities.

4.0 **CONTRACT MANAGEMENT**: The contract and management requirements set forth in the paragraphs that follow shall be executed by the contractor upon contract award.4.1 **Start of Work Conference**: The contractor shall, within 30 days after contract award schedule and host a start-of-work meeting with the Government and contractor program teams. The Government will coordinate the date of the meeting. The purpose of this meeting shall be to detail the contractor's management and to establish time lines required to accomplish the objectives of this contract. Topics for discussion shall include contractual schedule, design influence and integration, maintenance planning, Support Equipment (SE) planning, technical data (including technical manuals planning), training planning, lines of communication, facilities, and Government Furnished Property (GFP). Any questions or additions to the above discussion items shall be submitted by the contractor to the Contracting Officer 10 days before the meeting.

4.2 **Meeting/Conferences/Reviews**: Program meetings, conferences, and reviews shall be scheduled by the Government and conducted by the contractor as required or desired by PCO or his/her duly appointed representative in order to facilitate communication and program execution. The contractor shall prepare agendas for all contractor conducted meetings, conferences, and reviews. Action item documentation, assignment of responsibility for completion and due dates shall be determined prior to adjournment of all reviews. A summary of all action items, responsible party, and estimated completion date shall be included with the minutes, (See CDRL DI-ADMN-81505, Exhibit “G”).

4.3 **MILSTRIP Funding and Payment Procedure for Class IX Repair parts**: The (A0A) submitted in accordance with DOD 4000.25-1-M and DOD 4000.25-2-M, by the requiring activity will process the same as any other A0A to include full obligation of funds. Each fully funded A0A will pass through all systems to the Defense Automated Addressing System Center (DAASC), where the A0A will convert to an EC/EDI format, which is forwarded to the commercial contractor. The contractor shall deliver the item as required and bill all individual A0A’s under a single invoice, utilizing a separate billing document number for each Sassy Management Unit (SMU). These SMU document numbers will be assigned by the individual SMU’s and will be changed yearly (1 October to 30 September). The contractor will attach a listing of all A0A’s processed to each invoice and submit to the Defense Finance and Accounting Service (DFAS) Kansas City, MO for payment. An informational copy shall be provided to the Contracting Officer. Each fully funded A0A is a contractual obligation for payment purposes under this contract. DFAS Kansas City will pay the contractor utilizing the accounting data from each A0A as the obligation authority.

4.3.1 **Method of Billing**: The contractor shall bill upon shipment of an A0A document, consolidating billings weekly to DFAS Kansas City, MO. The consolidated invoice's for that timeframe of activity will generate payment by Electronic Funds Transfer (EFT) for all delivery orders. DFAS will specify the EC/EDI format.

4.4 **Price Changes**: The contractor shall furnish price change information accompanied by cost support to the Contracting Officer by 30 June of each year (See CDRL DI-ILSS-80391, Exhibit "H"). This pricing data will be updated 1 October of each fiscal year. Failure to adhere to this requirement will negate any price increases for the upcoming fiscal year, 1 October through 30 September. If a part is superceded or no longer available, the replacement parts cost will be determined by the contractor and re-submitted to the Government for review.

5.0 **CONTRACT PERIOD**: The contract is for three years with an option to extend for seven one-year options.

5.1 **METRICS:** The contract will be evaluated for exercising option years based on the following criteria:

- Average number of delivery days for all orders based on priority of requisition

- Average number of repair days for secondary reparables

- Maintain overall readiness of MTVR truck fleet above 90% except when readiness is adversely affected by situations and/or conditions outside the control of the contractor

6.0 **TRANSPORTATION COSTS**: All transportation costs are Freight On Board (FOB) destination except for contingency shipments, which will be arranged by Defense Contract Management Center, Milwaukee. All items under warranty or being returned under warranty will be shipped with the cost born by the contractor.

7.0 **PACKAGING**: All direct vendor shipments shall be packaged in accordance with best commercial packaging. Commercial packaging shall be adequate to ensure all supplies are delivered without damage and normal Government storage can be accomplished without degradation of materials furnished. Items to be trans-shipped by Government ports shall be packaged using MIL-STD 2073-1D, level A as a guide, and marked in accordance with MIL-STD 129.

7.1 **Bar Coding**: The contractor shall bar code the DD form 250/2250c or the commercial packing list or shall affix bar coded labels to same. The bar code symbology shall be Code 3 of 9 (Code 39) in accordance with

AIM BC1. Bar coded information shall be affixed to the outside of the shipping container to facilitate movement through intermediate receiving points. The following data elements are required:

Line #1	Document Number and Suffix
Line #2	13 Digit Number (National Stock Number)
Line #3	Routing Identifier Code (Vendor Code), Unit of Issue, Quantity, Condition Code

8.0 **GOVERNMENT FURNISHED EQUIPMENT (GFE)/GOVERNMENT FURNISHED MATERIAL (GFM)**: The Government will provide office space for the contractor's on-site personnel to include phone lines. In the event Government Furnished Equipment (GFE) is required, requests shall be submitted to the Management Control Activity (Code 573-2/MCA) at Marine Corps Logistics Bases, Albany, Georgia, with an informational copy to MARCORSYSCOM, Transportation, MCLB, Albany, GA. The contractor will be required to sign an Inventory Accountability Agreement.

8.1 **CONTRACTOR FURNISHED MATERIAL (CFM):** In the event that Contractor Furnished Material (CFM) is required for repair parts, DoD 4000.25-1-M, (MILSTRIP) Chapter 11 authorizes contractors to requisition through the DoD Supply System. The procedures in NAVICPINST 4491.2A shall be utilized in regards to CFM."

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Fort Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California

3. Marine Corps Representative
   Naval Postgraduate School
   Monterey, California

4. Director, Training and Education, MCCDC, Code C46
   Quantico, Virginia

5. Director, Marine Corps Research Center, MCCDC, Code C40RC
   Quantico, Virginia

6. Marine Corps Tactical Systems Support Activity (Attn: Operations Officer)
   Camp Pendleton, California

7. Professor David V. Lamm
   Naval Postgraduate School (Code GB/Lt)
   Monterey, California

8. Lieutenant Colonel Brad Naegle U. S. Army (Ret.)
   Naval Postgraduate School
   Monterey, California

9. Professor Ron Tudor
   Naval Postgraduate School
   Monterey, California

10. Lieutenant Colonel Thomas F. Manley III U. S. Marine Corps
    Marine Corps Systems Command
    Quantico, Virginia